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# GLEANINGS IN BEE CULTURE

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THE A.I. ROOT CO.  
MEDINA OHIO



U.S.A.

Western Edition.

# **TEXAS BEE-KEEPERS !**

## **Do You Want Satisfaction ?**

Then use the best hives, the best sections, the best of everything, by using Root's Goods. Don't be misled.

### **Weed New Process Foundation.**

We are now installing a complete outfit of the latest Weed Comb-foundation Machinery at this branch. Save time and freight by sending your orders here. Beeswax wanted.

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Don't forget our 5 per cent early-order discount for November cash orders; 4 per cent off in December; 3 per cent in January.

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We are now located at 1322 South Flores St., where we shall be pleased to meet any and all bee keepers when in the city. Call and examine our goods, whether you wish to buy or not.

**THE A. I. ROOT CO.,**

1322 South Flores St.,

**SAN ANTONIO, TEXAS.**

**GLEANINGS  
IN  
BEE CULTURE**

A JOURNAL  
DEVOTED  
TO BEES  
AND HONEY  
AND HOME  
INTERESTS.

ILLUSTRATED  
SEMI-MONTHLY

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YEARS AGO I did a lot of fastening foundation in frames as described on p. 969, but the present-day kerf-and-wedge plan is away ahead.

"THE BEST PACKAGE for extracted honey is the white iron drums holding about 60 gallons each," p. 986. That would be 700 pounds or more. I'm puzzled to know whether it really means that, or a 60-pound can.

"WHAT is the cause of the sour smell I notice about all apiaries at this season of the year?" writes a correspondent. Likely some peculiar honey source. Not all years, but a few years, in my home apiary there has been for a short time a very offensive odor when a hive was opened, and I could lay it to nothing but the honey gathered.

ROTTEN WOOD soaked in saltpeter is what the editor says I use, p. 984. Cotton rags, my boy, cotton rags. More convenient in my case. [About this use of saltpeter, there was a time when you used to soak rotten wood in such solution, if I am not mistaken. You lighted one of these pieces, then put in other fuel that had not been so treated. If I am mistaken, I stand corrected.—ED.]

I'M AFRAID beginners will understand, from what is said on p. 983, that it's a good plan to put an unfinished super of sections on a swarm as soon as hived. Whether full sheets or starters are used in the brood-chamber, the danger of the queen going up is sufficiently great to make it advisable in all cases to give no super till work in brood-chamber is started, unless an excluder is used.

"A POPULAR fallacy" is what O. O. Poppleton, in *American Bee-keeper*, calls the notion that much more honey can be ob-

tained by extracting unsealed honey than by waiting till it is in right condition. In Cuba he had special advantages for observation, and proves pretty clearly that "nearly or quite  $\frac{1}{2}$  of all loss of weight of newly gathered honey in the hive occurs during the first 12 or 15 hours after it is first deposited in the hives." Might be rather severe to say so, but it looks as if the man who puts on the market some of the unripe stuff to be found there is not only dishonest but a fool as well to spoil his market without any compensating gain.

GENERAL MANAGER FRANCE, in giving that lot of names as candidates, p. 973, has followed his own notion, not the rule of the directors. The rule is that "the two men receiving the greatest number of votes for each respective office are to be candidates for such office." The spirit and intent of that rule is that those two shall be candidates, and no others. If the intent had been that all were to be considered on equal footing, what sense was there in saying any thing about the two highest? When that rule was submitted, I sent an earnest protest to the chairman, but there was no chance for discussion. A little wire-pulling might succeed in giving the highest preliminary vote to two men not the choice of the whole, and the best man for the place entirely shut out of the race. If there had been any chance for discussion, I don't believe the directors would have passed any such rule.

THAT MAN LAWS told such big stories about such little nuclei that it raised the question whether he wasn't a bit up in the air; but when I saw him and talked with him at St. Louis he impressed me as a very solid sort of man, built from the ground up. He modestly disclaims entire originality as to all his plans, but all the same he deserves great credit for giving us so clearly plans that may be carried out at such a saving. [One of the great benefits of attending a bee convention is to see the very people whose articles we have read for years. Sometimes our impressions are unfavorable and others very favorable, with the result

that the articles of that person from that time on command much more attention. Yes, we have known Mr. Laws as being one of the solid men. He has bred queens for many years, and made it almost his exclusive business; and when he says these "babies" will yield good results you may rest assured that, with his conditions, if you follow his directions you will be able to meet with the same success that he does.—ED.]

A CORRESPONDENT in July introduced two fine-looking queens. Queens are laying well, but in each hive he has found at three different times one matured queen-cell in each hive. He asks why. The bees are trying to supersede. They scent afar a failing queen which yet appears all right to you, and it is just possible that sometimes the superseding is a sort of whim. [I believe you are right, doctor. But one thing that bee-keepers should remember is that bees discover signs of failing that do not appear to the bee-keeper. I have noticed cells starting while the queen was apparently doing full duty as well as any queen could do; would remove the cells, but a little later find she was playing out. Whim? Yes, bees take on peculiar streaks. They will at times set aside all known rules, balking the bee-keeper at every move. This is particularly so in the matter of introducing. When a colony gets a whim and decides it will not accept an introduced queen, one might as well give up and let it raise something of its own.—ED.]

SMOKER FUEL of little basswood blocks being preferred at Medina, page 970, is all right. If you say you prefer such fuel on the score of convenience, Mr. Editor, I've nothing to say; but when you speak as if it were intrinsically better, I demur. When you get your mother to say she prefers basswood to oak or hickory as a steady diet in a cook-stove, I'll believe that soft wood is better than hard wood in a smoker. [I have tried both hard and soft wood. The latter ignites more readily, and is a little handier for us to get, for we have carloads of it right handy. But lately we have been using the Coggshall smoker-rolls. They are nothing more nor less than old phosphate-sacks rolled up in rolls of suitable size, and tied with strings. They are then cut to the proper length with a hatchet. One end is then dipped in a solution of saltpeter. When dry, the cartridge is ready for use. We find this very ignitable, and ready to give off a good smoke in ten or fifteen seconds after a match has been applied. They are lasting; and, when prepared in advance on a rainy day, they save a lot of time in the height of the season. We have been thinking that perhaps we might be doing bee-keepers a good service by making up this fuel of the proper size, call them cartridges, and sell them at so much a hundred.—ED.]

"TEACHING a graded span of horses in one lesson of only three hours so they will nevermore be afraid of autos." That heading, p. 988, awoke my intense interest, but I was

disappointed not to be told just how it was done. My horses are so afraid of automobiles that the women take no comfort in riding. I only wish the machines were plentier, so the horses would have to get used to them. Keep on telling us about them, Bro. Root; it will do no harm for us common bee-keepers to dream of the time when the price will get down within our reach. [A great deal depends on the horse. Old horses are much more difficult to educate than young ones. I suppose it is largely because it is "difficult to teach an old bird new tricks." But I have myself trained several horses so that they now pay but little attention to my machine. It requires, of course, co-operation on the part of the horse's owner, and this is the method: The animal is led up to the machine while it is standing still, made to smell of it and look it over. The automobile is started up, and the horse follows it at a point far enough behind where he is not frightened. As he becomes more accustomed to it he is driven closer and closer from behind. The machine is stopped still, then he is made to pass it. He turns around, comes back, meets it, and passes it. Again the automobile is started up, and the horse follows it as before. After a little he can be driven quite close to it, and very soon he can be driven alongside of it. The machine is slowed down, and the horse goes ahead. It gradually catches up and passes the horse. Next the horse is made to pass the machine. The machine is stopped and put at a low pace, when the horse is driven up to it from the opposite direction. If he shows fear, the driver gets out and leads him by the bits, and makes him stand in front of the machine, or near it, until he becomes accustomed to the "choo-choo." The operation of coming up to the machine is repeated several times, until the horse begins to find that the red devil is devil only in name. A colt can always be taught, but some old farm plugs may give some trouble.—ED.]

FEEDING sugar syrup may be a useful thing, says Herr Reidenbach, in *Pfaelzer Bzg.*, when it replaces for winter food objectionable honey-dew or something of the sort, but is in general to be condemned. Honey contains from one to three per cent of nitrogenous matter; sugar, only a trace. This is absolutely essential for brood-rearing, and in general for replacing worn-out tissues. Sugar will keep up the heat in winter, but even in winter there is some wear and tear of tissue, which needs the nitrogenous matter of honey and pollen to replace; and a colony wintered entirely on sugar is to some extent lacking in vitality in spring. A case in point is cited. In 1894 two powerful late swarms were installed on account of their young queens, and were wintered on sugar. They wintered well, but the cold of February was of unparalleled intensity. When they flew in March they were rapidly decimated, and in two weeks every bee was dead, only a handful of dead bees remaining on the floor of each hive,

with food left in the hive. Colonies wintered on honey were all right; but these two, exhausted for lack of proper nourishment during the intense cold, were not fit for labor; and when they flew out from the hive they were unable to return. I strongly suspect Herr Reidenbach is correct, and I don't believe I can afford to replace good honey in the fall with sugar, even if I can get for the honey three times the price of the sugar. To be sure, bees have been successfully wintered on sugar year after year, but is it certain that they are just as vigorous as if wintered on honey? [This is a very seasonable question to bring up, and I should be glad to hear from others of our correspondents. We feed sugar syrup only when we do not have sufficient natural stores in the hive. Now, it may be that we had better help out some of our bee-keepers who produce good crops of off-flavored honey by buying those crops and feeding to our bees. Of course, we need to know that no foul brood exists in the yards in which such honey was produced. If we have no means of knowing, then what? Heat the honey thoroughly, then give it to the bees when it is warm, when they will take it down quickly; but unfortunately sugar-syrup of the best granulated sugar is as cheap per pound as the cheapest honey we can buy, and no knowing whether that honey would bring on dysentery in the spring.—ED.]



E. F. Atwater recommends a strip of tin  $\frac{3}{8} \times 3$  folded over the top-bar, and nailed to the ends of following boards to keep them from pulling to pieces. That would keep the top-bar from pulling off, but that is not the only place where they come to pieces.

H. S. Groves tells me that he has had good success introducing queens by a combination of the "drowning" method and the old one of rolling the queen in honey. He dips the queen into honey well thinned with water until the "uppinishness" is all taken out of her.

If you are in a district where foul brood is prevalent, be very sure that no diseased colony goes into winter quarters. If you have a full set of sealed combs, you can shake the bees on these after it is so late that brood-rearing has stopped entirely. If you have not these, better destroy bees and combs than to run the risk of trying to winter them.

The Paonia fruit-growers appear to have about given up the idea that the bees are responsible for the spread of pear-blight. It will be remembered that it was reported that the fruit-growers had bought up all the bees and sold them at auction on condition that they be removed from the locality. This was not done, however. Some experiments were made, such as confining bees to certain trees, and excluding them from others, but nothing seems to have been conclusive. Nothing was proved against the bees, and the whole matter appears to have been dropped.

A bee-keeping friend tells me that he sells a great deal of dark honey to a confectioner who uses it in the manufacture of high-grade candies. This is comb honey, mind you, not extracted honey. When I first heard this I thought the buyer had the idea that he had to buy it in the comb to be sure of a pure article, but it seems he has an altogether different reason. The whole thing, comb and all, is put into the candy. He claims it makes it "stand up" better. That is, I presume, it endures better the changes of temperature and moisture. I had heard already of using paraffine for this purpose, but he claims that the honey-comb is superior. It is possible that here is a market that might profitably be cultivated and enlarged.

Dr. Miller wants his hive-covers filled with wind, and tells us they stay flat without compulsion. Doubtless they do in Marengo, Dr. M., but I have come across a few double covers here that were pitifully ramshackle affairs after several season's use, that I would hate to depend on to keep the top of a hive tight. A fairly satisfactory cover, though usually not a beauty, is a good board well cleated at the ends, with an "upper deck" of thin boards, usually shingles, to keep off the sun. I rather think I prefer my shade-boards separate from the cover.

[Other correspondents have reported the same thing in regard to these double covers. A cover that would answer nicely in Marengo might give a good deal of trouble in Colorado.—ED.]

A correspondent writing about the small nuclei for queen-rearing says that they worked nicely early in the season, but later were complete failures. Just my experience. Like Dr. Miller, I crowded too soon. After getting to the point where I was getting very satisfactory results from them, all at once failures became more numerous than successes. I think the cool nights we have here in the fall do not agree with them. I believe I shall use two combs instead of one hereafter.

[Our little nuclei worked clear up through the month of September; but you remember we were practicing at the time outdoor feeding, which kept all the colonies and nuclei in the apiary in a high state of prosperity, just about as we would get from a natural honey-flow. If you had fed in this way you would

have found that the baby nuclei would have done as well as in the early part of the season, I think.—ED.]

Some bee-keepers believe that their bees have been poisoned by the spraying of orchards—not by spraying when the fruit-trees were in bloom. We have a law against that, though I fear some would have disregarded the law the past spring if the weather had been suitable. But in many orchards, and along the irrigating ditches that border or run through most orchards, there is a great deal of sweet clover. This is in bloom all the season, and the powerful power spraying-outfits in use here distribute the poisoned spray impartially over every thing in the neighborhood of the apple-trees. It is quite likely that in some cases there has been some damage done in this way, but there seems to be no way to prevent it unless the bee-keeper himself undertakes to keep the sweet clover mowed in the orchards of his neighborhood. Very likely the remedy would be worse than the disease.

The opening of the Uintah Indian reservation is of special interest to the bee-keepers of the West, since it will open up a large tract of irrigated territory that will make the finest kind of bee-range. The last Indian-appropriation bill provided for the opening. The original bill fixed October 1, 1904, as the date of the opening; but because of the amount of work to be done in making surveys and allotting lands, the opening was postponed by act of Congress until March 10, 1905.

The Uintah reservation lies in the northeastern part of Utah, in Uintah and Wasatch Counties. In area it comprises 2,334,000 acres of mountain and valley. In altitude the reservation ranges from 4000 feet in the lower valleys to 13,000 feet on the summit of the loftiest peaks of the Uintah range, the highest in the State. There are several fine streams of water which rise in this range, traversing the lower valleys and finally emptying into Green River. All of these streams can be easily diverted for the purpose of irrigation, making this one of the best-watered sections of the State. After making allotments to the Indians, the remainder will be open to entry under homestead provisions, each man being allowed 160 acres. There will undoubtedly be a great rush for this land, and it is probable that all applicants will be registered, and the land apportioned by lot, as was the case with the Rosebud reservation recently opened up.

#### HOFFMAN FRAMES.

The symposium on Hoffman frames shows that my articles on that frame have stirred up quite a hornet's nest among the bee-keeping fraternity. It is quite natural that we should not all think alike. It appears, too, that some of our differences of opinion arise from the fact that we are not thinking about the same thing. My article on page 930 men-

tions insufficient space back of the follower as one of the faults of the frame system. Some of my correspondents say there is too much space back of the follower, enough for an extra follower. Since that article was written I have handled a great many more hives containing Hoffman frames, and I find that it is true that there are a great many hives in use in which there is too much space, so much that comb is built back of the follower whenever the bees are crowded for room, the effect being the same as or worse than when the smaller space is allowed. I do not know who were the makers of these hives, nor have I measured them to know what was the exact inside width; but I know that in some cases, at least, the hive is wide enough to allow an extra frame to be crowded in. I inspected an apiary to-day in which three adjoining hives of the same inside width contained respectively seven, eight, and nine Hoffman frames. Talk about inexpert help being compelled to space Hoffman frames correctly! It can't be done! I have seen loose hanging frames that looked worse than Hoffman frames, as regards spacing, but I doubt if I ever found any that did not handle easier, other things being equal. As to using the Hoffman frame for extracting, the one who uses the regular Hoffman brood-frames, crowded up close together, for extracting-frames, has yet to learn one of the most elementary principles of profitable extracting. If he spaces them far apart, the Hoffman frame has absolutely no advantage over the plainest kind of hanging frame, while in several respects it is inferior. Whatever may be the good points of the Hoffman as a brood-frame, it is certainly not fit for an extracting-frame unless specially made for that purpose. As a brood-frame under extracting-frame, though, it will keep in far better shape for handling than under comb-supers. It is true that the thick and wide top-bars of the Hoffman frame will have less burr-comb built above them than thinner and narrower bars, especially if the latter are so thin that they sag at all. It is also true, that, if the bees are ever crowded for room, there will be many more brace-combs built between the thick top-bars than between the thinner ones. This not only increases the difficulty of handling, but kills many more bees. I can see no advantage in the use of two followers. Better use only one, and have it the right thickness, even if you use only nine frames in a ten-frame hive. Now, please remember that, in spite of all I have said against the Hoffman frame I believe that, as a brood-frame, it may be entirely satisfactory when always handled by intelligent and careful operators.

I am not arguing against fixed-distance frames. I use them myself, expect to always; and if I were starting over again I would use nothing else. But if I were using Hoffman frames I would keep them crowded together by thumbscrews or by springs. Thumbscrews are hardly adapted to the careless operator; but it is possible that the use of springs would rid us of some of our

troubles. They must be made properly, though. I never got any springs before the present season that would have been satisfactory.



#### LOSS OF BEES ON SNOW.

"Good evening, Mr. Doolittle."

"Good evening, Mr. Smith."

"Evenings are getting quite long again."

"Yes, and I am reminded that winter will soon be upon us again. Have you your bees ready for winter?"

"Very nearly so; and as I was fixing several colonies to-day for leaving over winter on their summer stands, I said to myself that I would come over and see you to-night, and ask you if there was any thing I could do at this time of the year to prevent the bees from coming out and dying on the snow as they did last winter."

"Do you think you lost many in that way?"

"I certainly do. Some days it seemed as though the ground was fairly covered with bees about the hives. Last spring many of my colonies came out weak in numbers, and I thought the cause was their dying so on the snow. Is there any way to prevent their coming out of their hives during cold days in winter in this way?"

"I will give you my plan to prevent such loss. But before I do this I wish to say that there are two causes for bees acting thus, one of which is bee-diarrhea, and the other the direct rays of the sun in and about the entrance."

"Is it bee-diarrhea that ails them when they come out and drop their excrement on the front of the hive, and all about on the snow as soon as they take wing?"

"Yes, that is the trouble where you see such a state as you mention; and where a colony has this disease the bees might as well die on the snow as anywhere, for die they will if the disease takes hold of them early in the winter, or before there is any prospect of warm weather coming to stay."

"Is there no way of helping them?"

"Not that I know of while it is cold weather, for all the fussing that I have ever done with them seems to be of no avail, but, on the contrary, as a rule it seems to hasten their death, if any thing, unless there comes a prolonged spell when they can fly freely to void their excrement, and then, four chances out of five, they will dwindle down to such an extent before many young bees emerge from their cells that such a colony will be nearly or quite worthless."

"Well, that must have been the trouble

with a part of mine last winter, for several of the colonies that came out so weak had the front of their hives all spotted over, while some of the combs were badly befouled near the entrance also. But what about the sunshine?"

"If the trouble is caused by the sun enticing them out when it is too cool in the air for them to fly, the cause should be removed by shading the hive."

"How is this done?"

"As the sunshine of February and March is apt to entice out all bees, more or less, by making the front of the hive and alighting-board near the entrance quite warm by the heat thereof, while the air just outside of this sunny nook is too cold for them to exist in, should they believe from this warm place that the air is warm enough for a fly; and as the winds of winter are apt to blow cold air and snow in at the entrance of the hives, thus making the bees uncomfortable, I prepare a board nearly as wide and as long as the front of the hive, and put it in place at the beginning of winter."

"Please tell me how you fix it to the hive."

"I set the foot of it out away from the hive some four or five inches, and then lean the top up against the hive just under the cover. Fixed in this way it not only shades the hive, but it keeps out wind and snow as well."

"Do you leave the wide board thus all winter?"

"Should a day warm enough for the bees to fly occur, and I am at home, I take the boards down, laying them immediately in front of the alighting-board, thus forming a nice spot, free from snow, for them to alight on, and very many take advantage of this board, let me assure you."

"When do you put the board back again?"

"At night I go out with a broom, and sweep all dead bees which may have been dragged from the hive away from the entrance and off the alighting-board, when the wide board is put in place again, ready for any sun, snow, or cold wind that may come in the future."

"But suppose you are not at home on any warm day?"

"If I am not at home, no harm is done, as the bees will fly out around the ends of the board, and come back the same way, if the weather is really warm enough for them to have a reasonably good flight."

"The shade-boards will make some extra work."

"Yes, that is right. Some seem to think that this winter care of bees is too much work, but unless any bee-keeper's time is worth \$5.00 a day during the winter at something else, I think he will be the loser by not taking the small amount of time required to do these things properly."

"Well, I think I will try a part of mine, at least, that way this winter and see how I like it."

"There is one point wherein some are deceived regarding dead bees on the snow.

Bees can rise as safely from melting snow as from bare ground, if the air is only warm enough, and the board which is leaned over the entrance tends to keep the bees in the hives, and quiet, if they are not diseased, till the air is what it should be as to warmth."

"What is the necessary degree of heat?"

"I find it to be 45 in the shade, providing it is still, with the sun shining; yet with even a warmer temperature the snow will often appear covered with bees, which the inexperienced are prone to believe were lost because the snow was on the ground. A little careful watching will show that these dead bees are those brought from the hive and dropped by the other bees while they are house-cleaning. This house-cleaning is always going on when the weather will permit of a flight, and at such times all the bees which have died during the cold weather which has preceded this flight are carried out of the hive by the healthy bees; and where these dead bees are not too heavy the healthy bee rises in the air with the dead one, conveying it some distance from the hive, when it is dropped on the snow."

"That is something I had not thought of; but I know it is so, for I have often seen a bee fly with a dead one on such winter flight."

"Again, 500 dead bees on the snow make more show than 10,000 would make on bare ground. For these reasons we are often alarmed when there is no real occasion for it. I suppose you have your bees in chaff hives?"

"No. Would they be enough better in such hives to pay?"

"I think so. Chaff hives are a great protection for bees in winter, not only from extreme cold, but in not allowing the rays of the sun to entice the bees out under unfavorable circumstances; and if you expect to winter your bees on the summer stands for any term of years I would advise you to use chaff hives for that purpose in this northern latitude. But even with chaff hives I think it pays well to use the wide board over the entrance."

"Did that clock strike ten? I must be off. I told my wife that I would probably be home by nine. This has been a short evening, I have been so interested."



In my write-up of J. B. Mason's bee business at Mechanic Falls, Me., October 15th GLEANINGS, I made the statement that his home was located two miles from town. He calls my attention to the fact that it is only half a mile, and that his bee-keeping friends stopping between trains would have plenty of time to call and see him.

#### KODAKERY AT THE HOME OF THE HONEY-BEES.

LIKE Bro. Hutchinson, one of my hobbies is picture-taking; and when I can combine this delightful pastime with business I am happy. When taking pictures of our manufacturing plant I have often wished that I could elevate myself at such a height and angle that I could take a real bird's-eye photo—something exactly true to life. True it is that an artist can be hired who will hand-paint a mind's-eye picture; but the general public know that these mind's-eye views are not real true bird's-eyes because they are often exaggerated. If I could elevate my camera at the proper height, and then by some means operate the shutter, I could secure what I was after.

I once had the boys make a monster kite. So big was it that my nephew, who had been entrusted to hold the line, was dragged some distance by the big thing in the air over a potato-patch, until he yelled for help, for he had tied the line to himself so as to make sure it would not get away; but the big kite swayed and ducked most magnificently; but after a few trial flights I became satisfied it would not do. The matter dropped until the panoram-kodaks were advertised. These are special instruments that will take in a very wide sweep of country. One can stand in a certain position, and not only catch in one view objects directly in front of him, but also objects at the extreme right and left. I sent for one, and took a number of exposures of our plant. While this instrument is adapted to only a very limited class of work, it answers an excellent purpose for some views that can not be obtained in any other way. For example, I stood at the door where the men mark their time as they come to and from work, and took an exposure of the court between some of the main buildings. The result was quite a surprise, and is reproduced for the benefit of our readers on another page.

On the left we see a portion of the room where the goods are packed after being manufactured. The lower two-story structure further down represents the power plant, comprising a 400-horse-power engine and boiler; a 30-horse-power engine; a 12-horse engine; a 100-horse-power dynamo; an 80-horse, and a 12. They distribute power all over the plant. Just beyond the power plant are wood-working shops that reach clear up to a large lumber-shed, a building that is very much larger than those shown in the picture. At the extreme right are the machine-shop and tin-shop; and in the right foreground is the foundation department where all the Weed machinery is installed. The runways connect the several departments with each other. Elevators stationed in the various buildings bring the goods up to the various levels, and the runways convey them to the different points on trucks.

In subsequent issues I hope to present other panoramic views that will give our readers something of an idea of the enlarge-

ments that have been going on in the manufacturing plant of The A. I. Root Co. during the last few months.

#### UDO TOEPPERWEIN.

On page 1026 of this issue we show an interior view of the office of Udo Toepperwein, the young man who has done such a large business in the way of selling supplies in San Antonio, Texas. I wrote to Mr. T., asking him to tell us something about it, and here is his letter, which will be self-explanatory:

*Mr. E. R. Root:*—I hardly know what to tell you regarding it, unless you want a few words of what we are doing here; and in that case I would simply have to say that we are very busy all the time, and the photo was taken just as we are at work every day; and none of us, except myself, knew anything of the picture to be taken before about five minutes previous to its having been taken. I was just reading a letter from a customer, sending in an order. He wanted his goods by return train, and, if I am not mistaken, the order contained 17 bee-hive bottoms, 13 R covers, a dozen Danzenbaker hives complete, one of them to be nailed and painted as a sample, besides a lot of other goods of various kinds, and he wanted to know all about how to transfer his bees, and in return told me all about his experience in bee-keeping in the past. This is the reason I look so bothered in the picture, as I had no more Danzenbaker hives nailed or painted; and since it takes quite a while to fill an order of this kind in a rush, I did not know whether I could give him prompt service, and my other customers also, as I usually fill orders in rotation.

Sitting at the desk next to me is the shipping clerk making out orders. At the window is his assistant receiving money for a shipment of honey which has just been delivered by the driver, who is just outside of the window, handing it to him. At the typewriter is our Miss Kate Nentwig, who writes all of these trouble letters. She is not quite as old as she looks, for she is only 14 and not 40; but, nevertheless, she can write the letters all right which you see before you. Just outside of the fence is one of our young men who just received a cake of wax by express, and is bringing it in to weigh it.

UDO TOEPPERWEIN.

San Antonio, Tex.

The young lady who wrote the letter referred to writes scrupulously clean copy, carefully and accurately punctuated, which at the age of only 14 is very remarkable. Mr. T. is to be congratulated on the help he has, and the business he has been able to build up. He has had large experience in producing honey; and, being a native of Texas, he thoroughly understands the conditions that confront the bee-keepers of that great honey-producing district.

Oh, yes! I should not forget to state that Mr. Toepperwein's hat has grown too small for him—he has a nice baby boy at his home.

#### SIDELIGHTS FROM THE NATIONAL CONVENTION AT ST. LOUIS.

In our last issue I promised to give a few sidelights or snapshots of the big convention. In doing so I shall not attempt to follow any specific order, but give a few of the things said and done, just as they occur to me at random.

Mr. Hutchinson, in the *Review*, has called attention to the fact that this was not a convention where very much was said, but a good deal was done in the way of *transacting business*. It is indeed a fact that this meeting did more real business of an important kind than many of the preceding ones. Some things had reached a crisis. For example, the question of what we were

to do with the constantly recurring comb-honey lies as they come out in the standard magazines and journals of the country was thoroughly discussed. Instead of wrangling and talking to no purpose, wasting valuable time, committees were appointed—excellent ones too—that will take hold of the problem in a way that I believe will mean the rapid curtailment of the disease, for that really seems to be what it is. It is violently contagious; for when one newspaper breaks out with the infection, dozens of others seem to catch it. The corrective remedies that have been hitherto applied have been only partially effective. In our last issue I called attention to the fact that a committee had been appointed to wait on some of the leading dailies of St. Louis, and how the facts the next morning were so garbled as to be unrecognizable to the members of the convention, especially to the members of the committee. The press was waited on again, with more favorable results, although the published items were not then entirely satisfactory.

The convention went on record as saying in most emphatic language that there is no such thing as manufactured comb honey, and never had been. It was voted to offer \$1000 for evidence going to show that machine-made comb honey was on the market. Some of the members of the convention themselves offered smaller sums. The news of these doings got into the papers, and I have seen several items that are very satisfactory. Later on, the chairman was instructed to appoint a committee of 15 representative bee-keepers, members of the Association, scattered in all parts of the country, who shall make it their business, whenever there is an outcropping of one of these lies, to follow it up with the moral force of the 2000 membership of the Association and secure a retraction. Such committee was not immediately named, but will be given in the official report.

#### A NATIONAL HONEY EXCHANGE.

At two of our late conventions an effort has been made to organize a honey exchange that would be national in character, along the lines of exchanges that are already in successful operation in Colorado, California, and elsewhere. At the St. Louis meeting, Mr. F. E. Brown, of Hanford, Cal., read a paper in which he urged the very great importance of having such an organization, and that in his opinion the time was ripe for its formation. He would have a stock company made up of hundreds and perhaps thousands of bee-keepers, each owning a limited number of small shares of stock. As a result of his recommendations a committee of five was appointed to draft a constitution and by-laws defining the nature and scope of the proposed organization. The movement received substantial encouragement to the extent that something like \$700 at \$25 a share was subscribed. While this, of course, is not a large sum, it was felt that it was an entering wedge.

Somewhat or other the impression seemed to obtain that this organization would suppress the dealers in bee-keepers' supplies, and a little discussion was raised over the point as to whether it should undertake to handle supplies as well as buy and sell honey of the bee-keepers. There was nothing in Mr. Brown's remarks, nor in those of any of the members back of the movement, that to me indicated any thing of the kind, at least for the present. The main thought seemed to be that the new organization should confine itself to the question of handling honey, so that the bee-keepers could secure a fair price. The character of the men back of the enterprise is such that I do not think that they will be unwise enough to bite off more than they can chew, as the expression goes; in other words, cripple an organization at its very inception by making an attempt to do more than it can really carry out successfully. Mr. Brown seemed to be strongly of the opinion that, for the present at least, the exchange should devote itself exclusively to the question of bettering conditions in getting honey from the producer to the consumer. This will be a big problem of itself, and will require the best efforts of the organization to solve it.

The impression seemed to prevail among a few that the Root Co. would be hostile to the new-born baby; that it and the other manufacturers of the country would be glad to see it die a natural death. I do not see any reason why the bee-keepers of the country should not combine to protect themselves; and if a manufacturing concern should try to frustrate their efforts it would only lose in the end. The Root Co. believes that the greatest good to the greatest number will be also the greatest good to the supply interests. If prices keep on falling the dealer eventually would have no orders.

#### A COMMITTEE ON NATIONAL LEGISLATION.

A committee of three was appointed to look after national legislation, consisting of H. S. Ferry, W. F. Marks, and C. P. Dadant. Pure-food measures of very great importance are coming up, and will come up in Congress, and this committee will doubtless see to it that the interests of bee-keepers are properly taken care of by seeing to it that suitable memorials are presented at the proper time and place. All these three men, I happen to know, are very active, capable, business men; and when the pure-food question comes up again, as it surely will, we may rest assured that *something will be done*. When they ask you to write your Representative and Senator, do so at once.

#### BRANDING AND ADVERTISING HONEY.

Following the reading of an excellent paper by Mr. York on advertising and selling honey, there was considerable discussion on the question of branding honey—that is, putting an Association brand of purity on honey put out by its members. Mr. Brown, of California, made a strong plea in favor of

such brand, for he knew that much of the honey sent out from California in square cans was adulterated before it reached the consumer, and as a legitimate result California honey received a black eye at the hands of the consumer. He drew attention to the fact that in California the bee-keepers have decided that their packages must be sealed, after being graded by a grader appointed by their special organization. If the seal is broken when it reaches the consumer, naturally enough he would have to take his own chances as to the purity of the goods; but if the seal was unbroken, then the local association will be responsible for the character of the honey under such seal.

Dr. Miller and others were very firm in the belief that the time had come for the Association to adopt an official brand. Mr. Benton indorsed this position, and then stated that, in his official capacity as apicultural expert in the Department of Agriculture, he was planning to get out a "Farmers' Bulletin," on the subject of honey and its uses, the same to be issued free to the general public. Possibly 50,000 of them might be issued. A motion was carried, to the effect that Mr. Benton be requested to prepare such a bulletin as he had outlined, and put it on the list of farmers' bulletins, for free distribution.

Mr. Abbott urged the importance of getting out a very small leaflet—one that could be issued at once; and he moved that it be the sense of this meeting that the Board of Directors of the National Association be requested to prepare such a circular, and furnish them free to anybody who will distribute them in any way he may see fit. The motion was carried.

Mr. Hershiser emphasized the importance of advertising honey, and the methods of producing the same, in the public schools. He went on and told what had been done in the schools of Buffalo; how he gave a series of lectures before the schoolchildren, an account of which has already been given in these columns.

The discussion developed the fact that the schools of the country were taking up nature study, and especially bee-keeping; and the Root Co. knows there is a general demand for little circulars, books, and pamphlets, which will give the teachers material which they can lay before their pupils.

Other suggestions were made along the line of getting local bee-keepers to secure the publication of articles on the general subject of honey as a food, in the local papers. The discussion finally wound up with the following resolution:

*Resolved*, That the National Bee-keepers' Association in convention assembled send its congratulations to the Pure-food Congress for their labors in behalf of pure food, in the hope that they may be successful in securing pure-food legislation.

The motion was carried. A committee of three was then appointed to present the resolution to the Pure-food Congress, then in session on the World's Fairgrounds.

(Continued.)

## AN EXPLANATION FROM W. Z. HUTCHINSON.

In justice to myself and my fellow-members of the National Association, an explanation is due them before they cast their votes for officers this month. When I noticed that my term of office as Director expired this year, and considered that Mr. Brodbeck's continued ill health would probably prevent him from again accepting the Secretaryship it seemed to me that it might be better if I were elected Secretary instead of Director. Correspondence with Mr. Brodbeck brought out the fact that he not only did not care for the office, but would not accept it. I thought of mentioning the matter in the *Review*, but feared that I would be accused of using it to further personal ends. The only course opened seemed to be that of addressing a circular to the members, and, with the approval and consent of Mr. Brodbeck, I sent out the following:

A PERSONAL REQUEST FROM W. Z. HUTCHINSON.

Flint, Mich., Aug. 13, 1904.

*My Bee-keeping Friend and Fellow-member of the National Bee-keepers' Association:*

Inclosed you will find a copy of a notice that will appear in all of the bee-journals for August. In that notice you will see that my term of office as a Director expires with this year, and I would ask you as a favor not to nominate me again to that office. I should like, however, to see Michigan still represented on the Board, and I know of no better man for the position than R. L. Taylor, of Lapeer. Mr. Taylor is fair-minded, well-educated, has practiced law several years, been twice elected Prosecuting Attorney for his county, served two terms in the legislature, and has been for years an extensive bee-keeper. As there is no lawyer on the Board, his election would be unusually desirable.

While I do not care to retain the office of Director, and should prefer to see Mr. Taylor elected in my place, there is an office which I think I could fill with satisfaction to both the Association and myself, and that is that of *Secretary*. The prosperity of the Association is largely dependent upon the holding of successful annual conventions, and the success of the annual convention depends largely upon the Secretary. It is he who must know everybody, know who rides this hobby and who that, and thus be able to assign the right topic to the right man. It is he who must write to this one and that one, and encourage and enthuse and bring together a big crowd of the flower of the country. Then the report of the meeting must be gotten into good shape, and published.

I don't think it is egotism when I say that I think I am better fitted to act as *Secretary* than I am to fill any other office in the gift of the Association. Don't think that, in wishing for this office, I simply have in mind the paltry salary or the little fame that may come for work well done, but I have deeply at heart the welfare of the Association, and desire that position in which I believe I can render it the most efficient service.

I am aware that, in sending out this circular, I am doing something out of the ordinary; but it is the only way in which I can let you know these things, and I have been doing things "out of the ordinary" all of my life. I don't always ask myself if this is what other folks would do, but, is it a reasonable, sensible thing to do? If it is, or I think it is, I do it.

Now, then, if you think I would make a good secretary, and you would like to see me elected, send your vote now to Mr. France and thus help nominate me, and, if I receive the nomination, vote for me again in November and help elect me.

By the way, you can use the inclosed slip in voting, if you wish, writing in the names in the blank, adding your own name and address on the margin, and then, enclosing it in an envelope, mail it to Mr. N. E. France, Platteville, Wis.; or, if you prefer, you can write out the list on a postal. Don't forget or get it mixed. I should like to have you vote for Mr. R. L. Taylor to succeed me as Director, and I should like to have you vote for me as *Secretary*.

Thanking you in advance for any favors in this direction, I am as ever yours,

W. Z. HUTCHINSON.

All would have passed off smoothly had I not made the mistake of sending this circular to only a part of the members. To print the circulars, envelopes, and address them, and pay the postage, was quite an expense. If I sent it to all of the members it would cost some \$25 or \$30. It occurred to me that it would not be necessary to send this circular to *all* the members—that if sent to half of them it would accomplish its purpose. That this might be considered unfair did not occur to me. It seemed as though I had a perfect right to ask just as many as I pleased to vote for me, and that I was under no obligation to ask all because I had asked a part. I think *now* that all should have been treated alike. I did not intend to slight any one, but, as the sending out of that circular letter, in the *manner* in which it was sent, seems likely to cause ill feeling and division in our ranks, I hereby withdraw my candidacy and most urgently request my friends to cast their vote for some one else.

When the members met in St. Louis, and compared notes, this man had received a circular and that one had not, and it was very natural that a "scheme" should be suspected. Hints of the feeling that existed came to me from various sources; but there was nothing definite, or in such shape that I could come out publicly and explain.

I make this explanation because I prefer to sail under my true colors, even if by so doing I may stand lower in the estimation of my friends.

Right here let me say that Mr. R. L. Taylor knew nothing whatever of the sending out of the circular.

Now, then, having made my explanation let me go a little further. Whether or not my course is deserving of censure or praise, there ought to be *some* method whereby candidates may be discussed in advance of nominations, without any *stigma* being attached. If an officer does not desire re-election he ought to be allowed to say so.

I have published this matter in GLEANINGS instead of the *Review* for two reasons: It reaches a larger number of members than are reached by the *Review*, and it will reach them before they begin voting this month, while the *Review* won't reach its readers until the month is half over. Thanking Bro. Root for his courtesy in this respect I am as ever yours,

W. Z. HUTCHINSON.

## OVERSTOCKING.

Outyards vs. One Large Yard; a Most Remarkable Yield of Honey in an Off Year.

BY E. W. ALEXANDER.

We send you a photo of our apiary, also a report of our honey crop of 1904. My only reason for sending this report for publication is that I am very much interested in this subject of overstocking. I was in hopes I could get a picture of our whole yard; but

on account of the ground sloping both to the south and east we could get a view of only about 400 colonies, or a little over half of the apiary.

The small building in the center is the extracting-house, with the pipe that conveys the honey to our large tanks in the storehouse. After winter and spring losses were over we had 500 colonies May 1, in this yard, which we increased to 725 about the middle of May, and reared about 600 queens.

In regard to this location, let me say that we seldom get any surplus until August. Of the 19 years that I have kept bees here there have been only four seasons when we got any surplus honey until our buckwheat harvest; but this season we got a fine lot of light honey in June and July; but when our buckwheat harvest commenced the weather turned cool, cloudy, and wet, so the bees could find honey only a day or two at a time, although there were thousands of acres of buckwheat in full bloom within two or three miles of them. Still, we have had about an average season. The largest yield we have ever had was 149½ lbs. per colony, spring count. That was an exceptionally good year. This year, since weighing up our honey, we find we have 141½ lbs. per colony, spring count, or a total yield of a little over 70,700 lbs. extracted honey from this one yard, including 80 sections of comb honey. In addition we have had 3600 sheets of foundation drawn out into nice extracting-combs.

To me the success of this large apiary this ordinary season goes a long way to show that I am not so much in the wrong in regard to overstocking as some people think, and I am sure I should have to have more than 1000 colonies before I would go to the trouble of putting any in outyards away from home.

Delanson, N. Y.

[I have long known of Mr. Alexander as being one of the most extensive bee-keepers in York State; but I never knew before that he was managing so successfully so many colonies in one location. I doubt if there are many localities in the United States that will support so many bees without cutting the average per colony away down to a very unprofitable basis; and we are, therefore, forced to conclude that the location must be a most remarkable one. We may rest assured there is no room there for another bee-keeper; indeed, it would be practical downright robbery to locate in the vicinity after reading this article about this remarkable yield.

Mr. Abram Titoff, the representative from the Russian government, who has been studying bee-keeping at Medina, spent some time with the Alexanders in the height of the season, helping them to extract, for I had directed him to them, as I believed they were the only extensive bee-keepers in the United States who had a crop. He came back with a very glowing account of what

he had learned and seen. We should be glad to have Mr. Alexander tell us something about his methods of extracting.

The little house in the middle of the ground appears to be a little extracting-building. While it may be portable, apparently it is not toted around, for the bees are all in one yard. It is too bad we could not have had the apiary all in one view. Some time when I get down in that vicinity I will take along my panoram, which will easily show the whole yard.

Mr. Titoff tells of his experience at this remarkable yard, and this I am glad to place before our readers.—ED.]

#### WHAT A RUSSIAN THINKS OF THE ALAXANDER YARD.

When the editor of GLEANINGS informed me that he had received from E. W. Alexander & Son a report of the season's honey crop, and intended to publish it in his journal, I requested the privilege of expressing my views with regard to that apiary.

In some American bee-papers I read reports of bee-keepers showing the greatest amount of honey produced; e. g., 130 to 150 lbs. and more per colony. Some say this is nothing more than natural—that bees *may* produce such an amount of honey; others discredit it entirely, believing it impossible unless bees are fed sugar syrup. The report of Mr. Alexander will probably appear to some to be exaggerated, and for this reason I desire to say a few words regarding what I know of Mr. A.'s method of work.

I have been traveling in the United States a little to see the difference in methods of bee-keeping; and through the recommendation of The A. I. Root Co. I spent a little more than six weeks with Mr. A., and became interested in his methods. I went there about the 15th of July. The clover harvest was finished, and bees were working on the basswood. Up to that time, at least 15 tons of honey had been gathered. During my stay there we got about 20 tons; and now what I want to say is, it was *all pure nectar* from flowers, the most of it being taken from clover, basswood, buckwheat, and goldenrod.

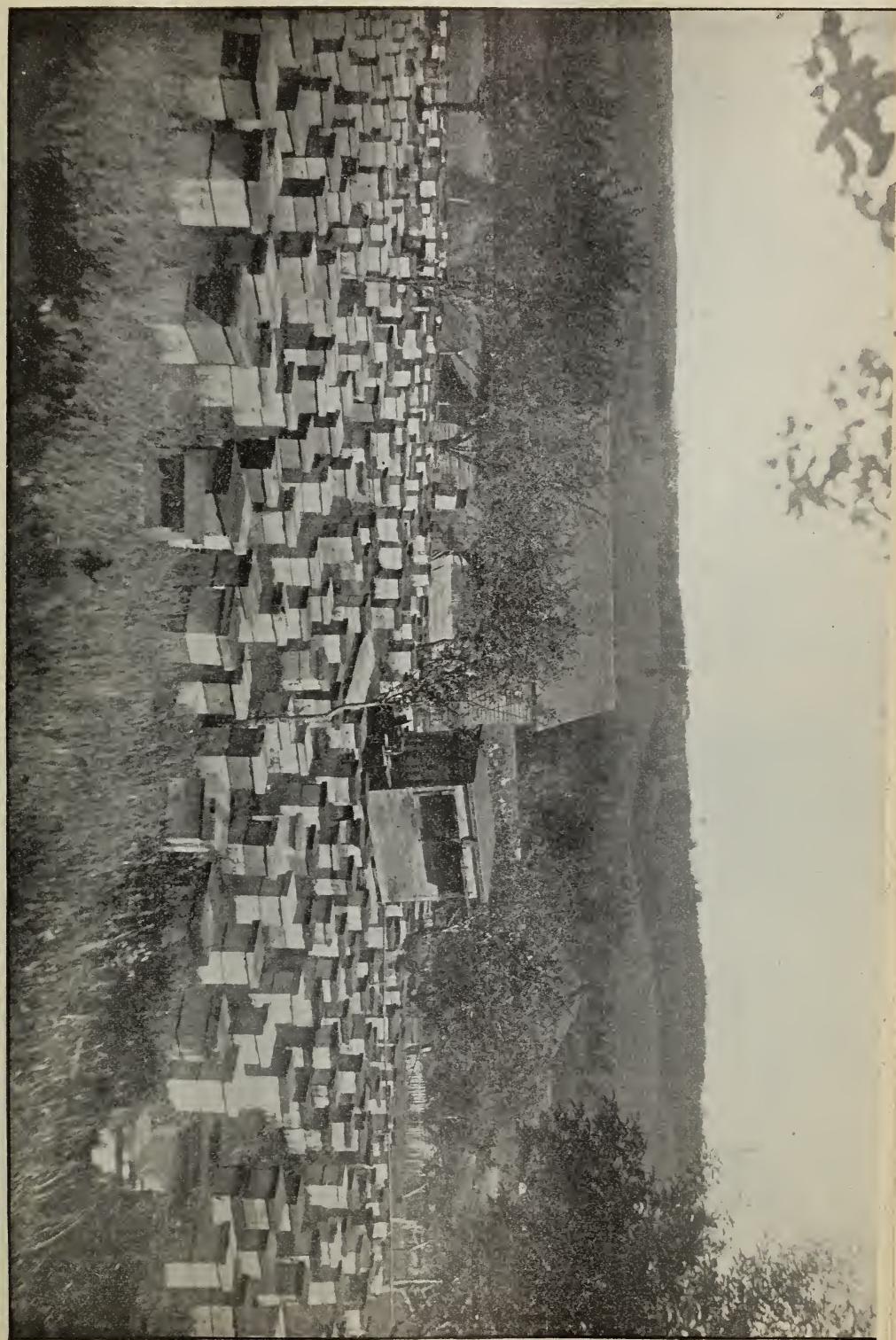
Such an immense honey crop is explained, first, by good location; second, by a good strain of bees; third, by a good manager who has thorough knowledge of his business.

The method of Mr. A. is very simple; expenses are nominal, and consequently the business profitable. I do not regret having spent my time there, as I received some new ideas which are valuable to me.

Medina, O.

A. TITOFF.

[I have understood that some of these enormous yields of honey from American yards have been discredited in Europe; it is, therefore, no small gratification that a representative from the Russian government has been here, seen with his own eyes, and can make the statement he does voluntarily. He could make the same statement of thousands of other yards he might visit.—ED.]



A PARTIAL VIEW OF THE ALEXANDER YARD OF 725 COLONIES THAT PRODUCED THIS YEAR 70,700 LBS. OF HONEY AND 60 QUEENS.

## FEEDS FOR BEES.

Cane, Beet, and Palm Sugars; Cheap Sugars for Bee-feeding; an Interesting and Instructive Article.

BY W. K. MORRISON.

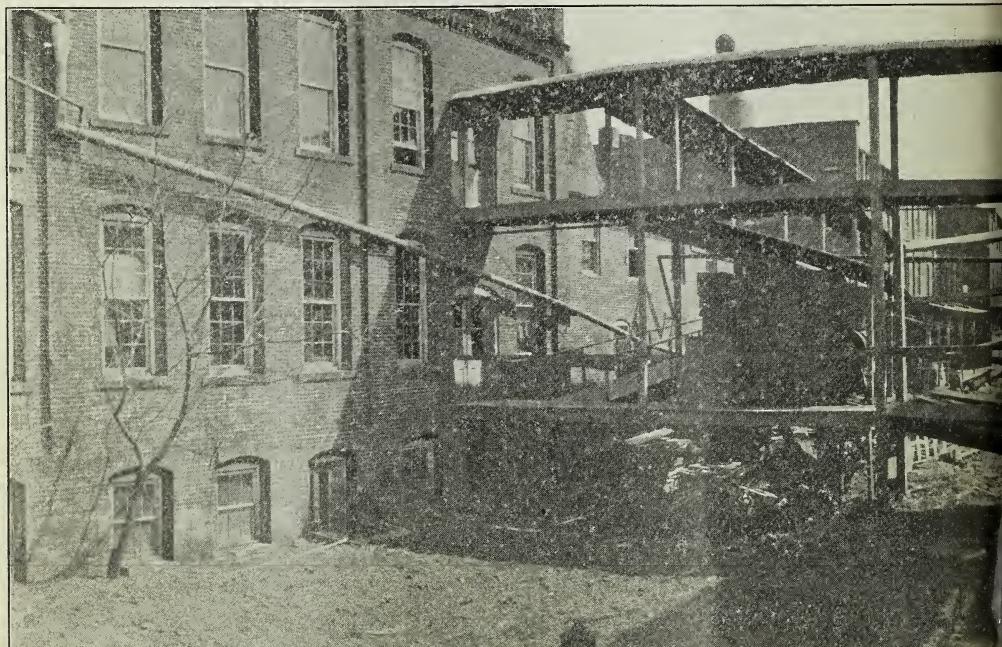
Feeding bees is one of the most important items in the management of an apiary, whether the location is north or south. For some occult reason this phase of bee-keeping has been somewhat overlooked of late by our periodical literature, so that a word or two on the subject may not be out of place just now.

To feed bees is far more of a science than it is generally supposed to be by many authorities, as I shall endeavor to show. Most bee-keepers are fully aware of the value of sugar syrup in stimulating brood-rearing in the spring or just before a honey-flow, or in the case of a colony that is short of stores for winter use. But a great field for scientific feeding lies beyond this, practically untouched as yet, which the bee-keepers of the future will have to explore before any great advance over present methods can be expected.

At present cane sugar forms an easy first as a bee-food. Right here let me say I am well aware that milk sugar and beet sugar are both denominated "cane sugar" by chemists; but the bee-man who would use milk sugar as a substitute for cane sugar

would be wanting in common sense, even if the price were the same. Any one who is interested in this matter can not do better than to get a sample of milk sugar and compare it with the ordinary sugar of the grocery, remembering that both are *exactly* the same, chemically speaking. I think all will agree with me that there is a very wide difference between the two, both to the eye and the palate. Beet sugar in a highly refined state may pass for refined cane sugar, and for some purposes may be superior to it—for example, in making fruit-syrup for soda-water fountains, where a syrupy taste is not wanted. In a raw state beet sugar contains a bitter principle, whereas raw cane sugar (concrete) is an excellent food for bees; and if it is kept clear of dirt, and carefully handled, it looks and tastes very much like maple sugar. Only an expert could tell the difference. Be that as it may, American bee-keepers nearly all use cane sugar, for the reason that only a small proportion of the sugar consumed in the United States is beet sugar. There is one feature of this question that is altogether overlooked, and that is, unrefined sugar is both cheaper and better. It seems ridiculous to buy expensive highly refined sugar when a cheaper article would suit equally well or even better. At the same time, it does not pay to use inferior sugar—for example, molasses sugar.

In Europe, beet sugar mainly is consumed, cane sugar being the exception, the



ONE VIEW OF AN INNER COURT BETWEEN SOME OF THE BUILDINGS.

## GLEANINGS IN BEE CULTURE.

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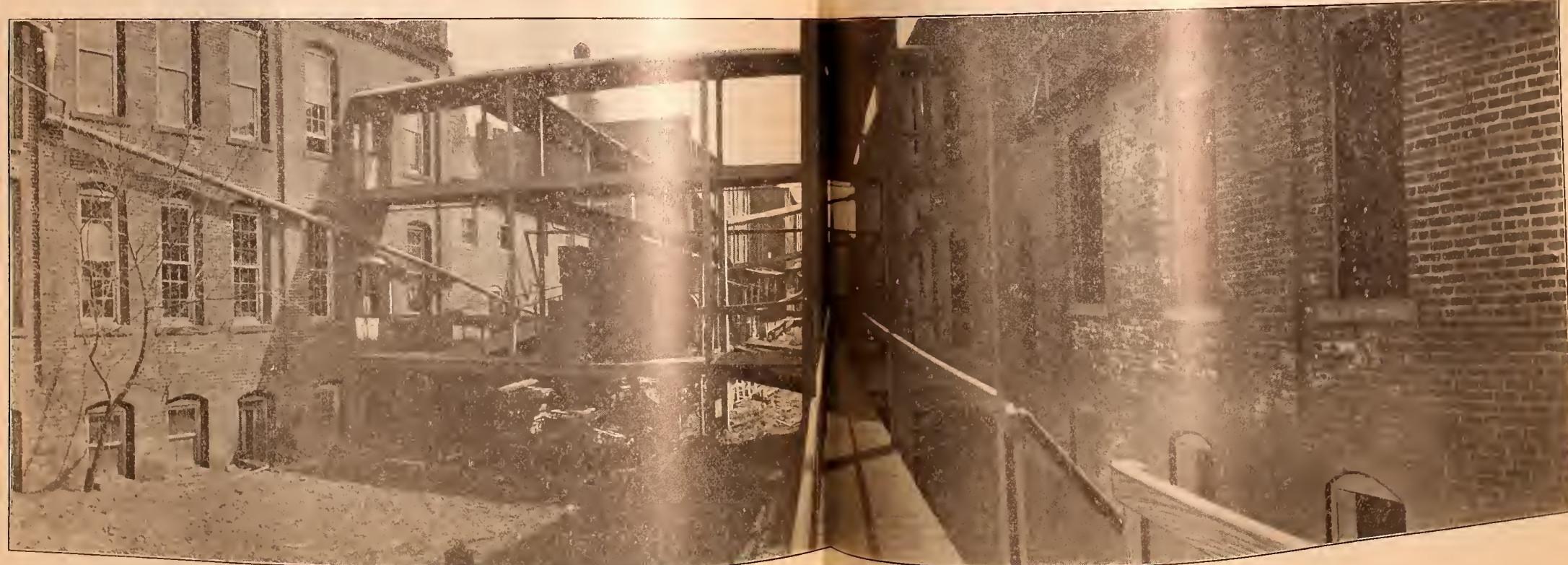
## GLEANINGS IN BEE CULTURE.

would make a superior product, and possibly cheaper.

Here let me note, bees are away ahead of the finest modern processes in evaporating sugar-producer, and the bees make it without heat. It would not surprise me if the beautiful cane sugar of the future were made by the aid of bees, very largely so if not altogether. The process seems clear enough to me. The bees should convert the juice into syrup, then the syrup should be frozen to cause rapid crystallization. It should be added here, some far-seeing able men have condemned the whole modern process of sugar manufacture. It seems wasteful in the extreme to use a large amount of fuel to evaporate sugar juice when the bees could do it by the *cold process*. My calculation is, it would require from 300 to 500 colonies of bees to handle the juice of 100 acres of cane during a campaign of 100 days. Some of the Cuban readers of GLEANINGS are possibly able to test this matter practically. It should be remembered that the wax produced would compensate a bee-keeper for his labor in attending to the bees.

The average bee-keeper of the United States never gets a chance to try raw sugar, for the good reason that very little of it is imported. Raw sugar in the form of concrete is sometimes imported from Cuba, Venezuela, and Brazil. Most of the sugar imported is more or less refined before it reaches American ports, though the tariff

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ONE VIEW OF AN INNER COURT BETWEEN SOME OF THE BUILDINGS OF THE A. I. ROOT CO.'S MANUFACTURING PLANT. SEE EDITORIAL.

discriminates heavily against refined sugar. The average American bee-keeper could get his sugar much cheaper than he does by calling for a sugar no higher than 16 Dutch standard; and, what is more to the point, this sugar is better than the coffee sugar he is in the habit of using at present. A word to the wise is sufficient. If he desires a sugar that may be used for the table, a 2 centrifugal sugar, which has large crystals of pale straw color, will do. The American housekeeper demands a hard dry white sugar, which the sugar trust, of course, furnishes at a large increase in price. Many bee-keepers are so situated in the West Indies as to be able to buy 50 lbs. of sugar for \$1.00. In such situations successful bee-keeping is a foregone conclusion, particularly where one is looking out for wax.

I have seen bees fed in Kansas and Nebraska with sorghum syrup, and a similar syrup can be got from corn, teosinte, and other crops; but their use is so problematical it is necessary only to mention them and pass on to more practical things.

Date-palm sugar is occasionally imported into the United States. It is known to the trade as "jaggery." It is an excellent sugar for bee-feeding; and where one is in a position to get it cheap it ought to prove a desirable acquisition. The sap of the date-tree is handled in much the same way as the maple is; and, so far as I know, it is a richer juice. If date culture ever takes a hold in the United States I'd like to be near a date-palm grove. The date flower is a prodigious honey-producer, and, with the juice to feed the bees in time of need, a bee-keeper with a date-palm range ought to have a bonanza. Of course, if one taps the tree too much no fruit may be expected; but I understand a fair amount can be tapped without injury.

#### THE HONEY PALM.

In Chile there is a palm which is said to produce *honey*. Americans would denominate this as *syrup*, as it would hardly pass muster as honey. The honey-palm produces an immense amount of syrup, as well it might, as it looks to me like a mighty barrel, and it has none of the gracefulness of the palm. It stands as much cold as 20° of frost, and it may, therefore, be grown largely in the United States. There are quite a number of trees in California, but I doubt whether the owners know of its use. The Chileans have a wasteful plan of cutting the tree down to secure the sweet sap; but it can be tapped, as in the case of the date palm. I think the Chileans are not any too cleanly in their method of handling the juice. Any way, it would make nice bee-feed.

#### THE PALMYRA PALM.

This great oriental tree (*Borassus flabelliformis*) is a sugar-producer. The whole process is much akin to that of maple-sugar production. The result is "jaggery" sugar similar to date sugar. The juice must be rich, as it is said by some writers that 6

lbs. of juice will produce one of sugar. This palm would be a desirable acquisition in Cuba, as it has many uses besides this.

#### THE COCOANUT PALM.

It is not generally known that the cocoanut palm is a sugar-producer. As a matter of fact it is a good one, as may be readily found out by slashing one with a cutlass, causing the juice to flow, when the bees will eagerly catch the sap as it flows down the trunk. In some places sugar is made from the sap, which largely explains why bees revel in the cocoanut blossom.

#### THE CARNUABA, OR WAX PALM.

Sugar is also made from the sap of this great wax-producer, so that it may well be termed a serious rival to the honey-bee—the only rival known. I have no information as to the amount produced in Brazil. It is better known to American bee-keepers as a source of wax, and it produces an immense amount of the latter—millions of pounds—one port alone (Ceara) exporting as much as 2,000,000 lbs. per annum. Then the Brazilians use a vast amount of candles. I have every reason to believe the carnuaba is also a nectar-producer. Evidently this palm is destined to rank with the cocoanut and the date.

#### THE GOMUTI PALM.

What has been stated about the other palms will apply to this one (*Arenga saccharifera*) also.

It will be noted by the reader that this list contains nearly all the very famous palms of the world; and should it prove that the great Doum palm, of Africa, is also of value to bee-keepers, we could safely claim the heads of the whole list of palms, both as nectar-bearers and sugar-yielders. There is evidently a close connection between nectar-giving and sugary sap, hence I feel bold enough to lay down this law: That a sugar-producer is also a nectar-yielder or *vice versa*.

[Possibly it may be well for us to look into the question of whether we may not be able to import a cheap yet safe sugar for a winter food; but it is my impression that our commercial granulated sugar (whatever its source) would be cheaper than any thing we could import in quantities no larger than bee-keepers would require.—ED.]

#### VALUABLE HONEY-PRODUCING PLANTS.

What the Department of Agriculture Expects to do in Spreading Information on the Subject of Continuous Bee Flora.

BY FRANK BENTON

(Apicultural Investigator, United States Department of Agriculture).

Under the heading of "Seed-growing for Bee-keepers," Mr. W. K. Morrison has, on p. 654 of GLEANINGS for July 1, 1904, made mention of a number of valuable plants, all of which, however, have been brought for-

ward frequently in former years, both in American and foreign journals of apiculture as well as in treatises on bee-keeping.

As has been the case in Mr. Morrison's articles on foreign races of bees, where he has attempted to give authoritative information, there is much of interest in what he has to say, but yet not wholly unmixed with error. It is to correct some of these points that I will proceed to mention one or two of the plants which he advises bee-keepers to introduce.

#### SAINFOIN, OR ESPARCET (*ONOBRYCHIS SATIVA*).

Mr. Morrison states that sainfoin corresponds very closely to the alfalfa of the West. It is true that it is in the *Pulse* family, but the genus is an entirely different one from that of alfalfa, nor in the classification is it placed next to the genus of alfalfa. While a most excellent forage crop, and particularly nutritious as a fodder for milch cows and working horses and oxen, it is not as great a yielder as alfalfa, nor as lasting a perennial. The growth is not so luxuriant as alfalfa, and somewhat different conditions are necessary to its success. Besides the usual soil inoculation which most leguminous plants require, it must have for its best development a gravelly, limestone soil, or something like this. In the absence of lime in the soil, a heavy dressing of this material in some form is advisable—in fact, quite necessary—to insure a catch of the seed. It is just here that many have become discouraged in attempting to establish this plant. The limits of the chapter on bee-pasturage in my manual of apiculture ("The Honey-bee," Bulletin No. 1, n. s., Division of Entomology) did not permit my enlarging upon methods of cultivating the various crops, although on p. 61 in the first edition, as well as in the later editions, is to be found the following sentence: "Sainfoin (*Onobrychis sativa*) and serratella (*Ornithopus sativus*), both most excellent honey-plants, have not received the attention they merit, either north or south. Japan clover (*Lespedeza striata*) is grown profitably in the South, and even more might be expected from the introduction of sulla clover (*Hedysarum coronarium*) there, the latter a great honey-producer." Plate 4 in the same publication gives an illustration of sainfoin. Again, in an essay before the North American Bee-keepers' Association in St. Joseph, Mo., in 1894, I mentioned this plant in the following words, as reported on p. 357 of the *American Bee Journal* for June 10, 1897:

Sainfoin, or esparcette (*Onobrychis sativa*), is a leguminous plant largely cultivated in Europe for forage and hay. It is raised to a limited extent in our Southern States, but it is worthy, I believe, of a much more extended cultivation, although it is not altogether hardy at the North. It has yielded a light crop as far north as Massachusetts, but it is liable to winter-kill considerably there. In the milder portions of the United States, and south of the Ohio, westward to the Pacific, it surely ought to succeed on light dry soils which contain lime. It is a most excellent honey-producer, and the honey is of fine quality—clear, thick, and pleasant-flavored.

The honey from sainfoin is most transparent, very thick, and of fine flavor. It blos-

soms in June, hence late enough for colonies to be populous, so that, wherever it can be made to grow, I believe it would be a most valuable addition to honey-producing crops; but I would warn those located in the far North not to expect too much of it, especially in those sections where the snowfall is not great, since the liability to winter-kill is greater with this plant than with alfalfa; nor should it be expected that the plant will exceed or equal alfalfa in any respect.

#### SULLA CLOVER (*HEDYSARUM CORONARIUM*).

It will be observed that the generic name of this plant is not the same as that of sainfoin. It is, however, a plant much more nearly related to sainfoin than the latter is to alfalfa. Mr. Morrison is quite in error in treating it under the head of sainfoin, and calling it "the Spanish kind known as 'sulla,'" for, as just indicated, it is not at present classified as a kind of sainfoin. The quotation from "The Honey-bee" given above indicates that it was my belief that sulla clover might be profitably grown in the South. I should, perhaps, have emphasized at that time the fact that this clover is restricted to the extreme south of Europe, principally to Italy, being quite sensitive to the cold of more northern countries, so that it can not be expected to succeed north of South Carolina; but surely if introduced into the Southern States, and grown under conditions similar to those which I have pointed out as being favorable to the growth of sainfoin, it would prove a great boon to stock-raisers and bee-keepers in that portion of our country. While something of a drought-resister, it is by no means a semi-arid plant, but requires frequent rains or free irrigation. In those portions of Italy bordering on the Adriatic Sea, sulla clover is a very important crop—in fact, the chief dependence of the bee-keepers there, and this is the region where it is grown more than in any other country. It would, therefore, be somewhat of a misnomer to call it Spanish sainfoin.

In the course of our work during the fiscal year just begun we hope to secure a quantity of the seed of both of these plants for distribution among bee-keepers favorably situated to give the matter a test. It is not to be expected that a large quantity will be sent to any one person, but still enough to test whether the plant can be grown or not. This work was determined upon some time ago, and it is, therefore, gratifying to see that Mr. Morrison writes appreciatively of these plants.

#### ARTICHOKEs.

I hardly share Mr. Morrison's opinion that artichokes would be any particular addition to our honey-producers. While they may yield some honey, and also pollen, I do not believe the quality of the former particularly good, nor that the yield would be abundant. Merely as an incidental source to keep bees busy, their value would be something, but, like sunflowers, unimportant as a real crop.

## HORSE BEANS.

From these, as well as the various kinds of bush limas, better results may be expected than from such crops as artichokes. In some points in California large yields are asserted to come from the bean-fields. The honey is likewise of much better quality than that from plants of the sunflower order. The time of blossoming (midsummer) is likewise a period when many regions are deficient in honey-producing plants, so that certainly in our middle latitudes, and possibly, even, in the North, something might be expected from an extensive cultivation of beans.

## RAPE (BRASSICA NAPUS).

While, very likely, Mr. Morrison is correct in the statement that rape is not as extensively planted as it ought to be, still, from his manner of writing, I judge that he knows little of its spread in recent years through our more northern States, New England, Oregon, Wisconsin, and Minnesota, where, as a crop for fattening sheep and hogs, it has become very popular. Two kinds are illustrated in my Manual, p. 60—the Dwarf Essex, or winter rape, which, cultivated as a biennial, blossoms in early spring, furnishing, besides honey, an abundant yield of early pollen, and the summer or bird rape, raised for the seed, which is used as bird seed, and likewise in the manufacture of oil. The former is the chief forage crop, and, when sown in late summer, furnishes an abundant autumn pasture for fattening animals. Only those situated in a cool climate can expect the best results from rape as a forage crop.

## TAGASASTE, OR "TREE ALFALFA," (CYTISUS PROLIFERUS).

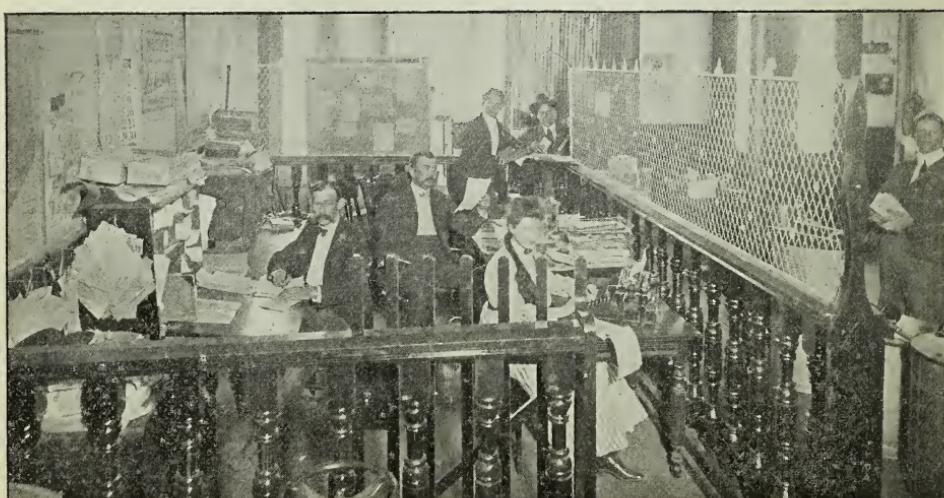
This plant, belonging with the clovers in the *Pulse* family, has been tried in a very

limited way in some parts of the country, but with indifferent success thus far. I am unable, at the present time, to say what the reason for this is, unless it be the trouble of getting the tenderer portions of the plant before the animals which are to be fed on it, without great injury to the plants themselves. It is a woody species of broom, the tips of whose branches only are suitable for stock. My own belief is that land not available for other purposes might perhaps be reseeded to tagasaste and left as a pasture-range for such animals as goats and sheep, regulating the number so as not to result in too great injury to the perennial plants themselves. In the Canary Islands, portions of Spain, Scotland, and Australia, this and other brooms furnish considerable pasture to bees, so that certainly they are very hopeful plants for experimental purposes.

## RED RASPBERRIES, HAZELNUTS, AND FILBERTS.

The importance of these has been mentioned in both of our Departmental publications, and at least the first of them (raspberries) has often been brought forward in foreign publications, although I am clearly of the same opinion as Mr. Morrison, that the importance of the red raspberry as a honey-producer has hardly been appreciated. Even a few acres would furnish a large apiary with pasture for several weeks.

In conclusion I would state that I am firmly of the opinion that our future bee-keeping must take more into account the lack of continuous pasture in any given locality, and intelligent effort must be directed to supplying this deficiency. It is, therefore, a source of satisfaction to me to be able to state that we intend here at the Department to enter upon a series of studies which will result in a complete mapping of the leading



UDO TOEPERWEIN'S OFFICE AT SAN ANTONIO, TEXAS. SEE EDITORIAL.

honey-producing plants of the country, their times of blossoming, amount and quality of yield, with notes as to cultural methods, etc., so that in time we shall be able to know exactly what period is to be filled in, and what plants will serve the purpose for any given section or region of the country. We shall then be in a position to advise intending bee-keepers, or those already engaged in honey-production or other aparian work in any part of the country, more intelligently than is possible at the present time; and we shall also be able to know better what foreign introductions are likely to be valuable in any part of the country.

U. S. Dept. of Agriculture,  
Bureau of Entomology, Washington.

[The bee-keepers of the country need to note what the Department is about to do for them in a line of investigation that may mean very much. It is a source of great gratification that our government is taking the interest it is in our pursuit. No small share of credit is due Mr. Benton, its expert, for this recent awakening of interest.  
—ED.]



#### STINGLESS BEES THAT WOULD PROVE A DESIRABLE ACQUISITION IN THIS COUNTRY.

*Mr. Root:*—You will be thinking I am very long in sending you the stingless bees; but it is almost useless to try an experiment of that kind from this country. When I get to Porto Rico I will make a trial shipment and see. These bees are very different from the Cuban sort; in fact, they would readily pass for Italians, the leather-colored kind. They give about two gallons at a "cutting," say twice a year. They are so tame that any number can be kept on the veranda, with people passing all the while. If very much worried they will bite, but not hard. I have been told of a kind that is "white," but this probably means yellow. These bees have been domesticated for ages, probably since long before Columbus. I wonder if the Carnegie trust would furnish me the money to follow this matter up. I feel absolutely certain that in California and Florida they will prove a desirable acquisition.

W. K. MORRISON.

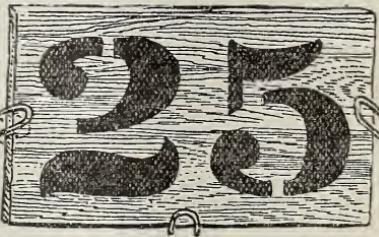
Prince's Town, Trinidad, Sept. 10.

[Perhaps we could interest Uncle Sam.—ED.]

#### NUMBER-TAGS MADE OF PIECES OF SECTIONS.

Having read descriptions of the different numbering-tags in GLEANINGS I send a description and cut of tags which I am using

with much satisfaction, and are certainly cheap enough for any one. The tags themselves are made of old broken sections, which are usually handy to every bee-keeper, and are made in my case (since my colonies as yet can be numbered with two figures) two inches in length by the width of the section. These numbers are made with a \$1.00 stencil set, and are an almost indispensable article about the house and shop in labeling signs, bags, etc. The numbers are one inch in height.



As to the method of fastening on the hive, three small staples are used, slanting inward as in illustration. This leaves the tag free to slip in and out at pleasure. These staples can be purchased at the hardware store for about one cent an ounce.

If desired, these tags can be used as a hive-record, the same as the small slates, by making them square and then turning to the right, left, and upside down; and, to increase the combinations, drive three more staples in one corner of the hive, or even two corners, as the staples are so cheap.

ARTHUR H. MCGRAY.  
Duvall, O., June 21.

#### HOW TO INTRODUCE TO A COLONY LONG QUEENLESS.

Please give me a method of introducing a queen to a colony which has been queenless for two or three weeks. I have not had much experience with bees.

SYLVIA MILLER.

Conway, Kan., Sept. 21.

[A colony that has been queenless some two or three weeks may or may not have laying workers. It may possibly be hopelessly queenless, in which case it would accept any queen that you give them without the formality of caging. First look through the hive very carefully and see if there are any evidences of laying workers—two or more eggs in a queen-cell, or several eggs in worker-cells, the laying more or less patchy comb, in some cells no eggs, in others one or more. It may be a little late to find any eggs, even if the laying workers are present. If there are no indications of such laying worker, let a virgin or laying queen run in among them. If they treat her kindly, show a hum of rejoicing, you will have no trouble. If the queen is balled it may be advisable to unite this colony with some other strong colony, or treat the hive as if it had laying workers.—ED.]

## HOW TO MOVE A WHOLE APIARY LESS THAN A MILE.

I see so many questions asked in regard to moving bees that I should like to give my experience in that line. While the requirements are simple, yet some of them are frequently overlooked, and a failure is the result. In the last seven years I have moved five whole apiaries for myself and others, the distance in every case being under a mile. Two of the apiaries were my own, consisting of a hundred colonies, and were moved a little over fifty yards, in warm weather. In all this number, less than a gallon of bees went back to the old stands.

I think March is the best month in the year for moving an apiary. If you have work of this kind to do, put it off until winter if you can. If you are obliged to change your location in warm weather, leave the hive-entrances open while on the road. This may seem like a dangerous matter to one who has never tried it; but if the road isn't too rough it is perfectly safe. Take a small load, not over a dozen colonies. Let one man watch the hives with a lighted smoker, and another do the driving. You have no idea how easy it is to smother bees by shutting them up in warm weather until you have killed a few stands that way. If the temperature is below 40 degrees it will be safer and easier to shut the bees in.

Don't leave any thing but the bare ground at the old location. If the distance is under a mile, a large number of bees will usually go back to look around; but if they have marked the new home properly they will always return. If they are to be moved in warm weather it should be done very late in the afternoon, so they will have no chance to fly until the next day. If it is done in cool weather, leave them shut up until sunset. Put them on the new stands; leave them alone until some of them begin to fly, then go around and give every one a good smoking so they will know there is something doing. Then set up a board in front of each one so that a bee can not easily get out without bumping its head. I believe this is the most important part of the work, but it seems such a little thing that it is often neglected. It causes them to notice that there has been a change, and to mark the spot before leaving it. Many of them will go back to the old stand; and if there is a hive there, or any thing that looks like one, they will enter it and forget all about the new location. If there is none they seem to remember that there is one more chance, and that is the place they have just come from.

C. F. BENDER.

Newman, Ill.

[We have had reports before, going to show that the entrances of the hives may be left open; but when the colonies are first loaded the bees should be smoked; for at the first "jounce" of the wagon some bees might offer attack.

Other reports, too, have shown that, when bees are moved, there should be no hives

left at the old location. A beginner trying the plan here described should proceed with extreme caution.

I generally advise that, where bees are to be moved less than a mile, the moving be deferred till early in the spring, before the bees have had a chance to fly. If they have been in the cellar, all the better; for they can be put anywhere, and will stay where they are put.—ED.]

## THE STING OF A WASP AS COMPARED WITH THAT OF A BEE.

I notice with interest Stenog's reference to what Mr. Wathelet, editor of *Le Rucher Belge*, says about the sting of the wasp as compared with that of the honey-bee. His is identical with a recent experience of my own, although the sting I received was from a yellow-jacket, smaller than the bee, and it lasted several days. While the part did not become swollen, there was a painful, itching sensation for more than a week; but had it been the sting of a bee, an entirely different sensation would have been produced, which would have disappeared in five to ten minutes. I found the wasp-nest, broke it up, and secured the queen, the remains of whose royal highness I have kept. I feel confident that the poison is quite different from that of the honey-bee, and more virulent.

W. M. WHITNEY.

Lake Geneva, Wis., Oct. 10.

## A CHANGE WANTED; TIN PANS AND "POUNDED SWARMS."

If The A. I. Root Co. would manufacture every thing it is asked to in Heads of Grain, and incorporate in the A B C book all the advice found there, what a change we should find! I want the Root Co. to manufacture different sizes of tin pans to pound on when a swarm is coming off; also please run into the next edition of the A B C book the fact that this saves clipping queens, and that a pounded swarm can not abscond, never dies in winter, and caps its honey whiter. What can you supply foundation for with cells 4 inches across?

L. E. KERR.

Germania, Ark., Oct. 8, 1904.

[You get the four-inch bees, and we will make the foundation to fit. That's easy. No doubt your "pounded swarms" will beat any thing on record.—ED.]

## UNUSUAL RAINS IN CALIFORNIA.

We have been having unusually wet weather for this time of the year—the worst ever experienced here. In this city the rainfall already has been over six inches in a little over two weeks. Grass is quite green everywhere. Much damage has been done to hay, grain, beans, hops, and some kinds of fruits, especially grapes, the latter being one of our most important crops. Of course the bee-men will profit by the early rains, as fall and winter flowers will come out in redoubled numbers. The real winter, however, may be dry.

W. A. PRYAL.  
San Francisco, Cal., Oct. 11.



She looketh well to the ways of her household, and eateth not the bread of idleness.—PROV. 31:27.

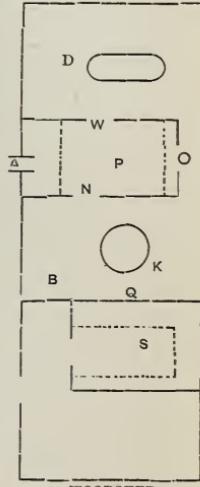
I have oftentimes mentioned that, in our home, Mrs. Root does her own work without any help. When she and I are alone we get along very nicely; and when the children come home they, of course, know how to turn in and help, so Mrs. Root's cares and responsibilities are less (or ought to be) instead of greater, for the Root children know how to do things the way their mother taught them. Of course, when there is sickness (and this has happened only a few times, for which may the Lord be praised) we must have hired help. I do not wish to be uncharitable and severe on the average hired help in the home; but most of you know something about how difficult it is to get help that will really make things easier. Perhaps this is especially true when we get to be well along in life. It is very trying to old people to have somebody move their things around and get them out of place; to pick up utensils and drop them where last used. And, by the way, my experience is not only in the home, but in the factory or anywhere else there are only a few people in this world who will put things back where they find them after they are done using them. If fathers and mothers would only drill their children from early childhood to be careful about hindering the business of the world by handling and getting things out of place, what a blessing it would be to this world!

Yesterday a mother and two children started to go up in an elevator. One was a boy three years old, and the other was a baby in its cab. There was some little difficulty about getting the cab into the elevator, and the boy in charge left his post just an instant, and stepped out to help the mother. As soon as his back was turned, the little boy grabbed the lever and gave it a pull. The elevator started, and the baby was crushed to death right before the mother and the little brother. This boy had not been taught to keep his itching fingers off from things that did not belong to him. He did not know better than to meddle with dangerous machinery; and the saddest part of it is, this world is full of just such *meddling children*. I know of a few careful mothers who teach their children—boys and girls—so thoroughly and faithfully that they never touch things without permission. But I know of hundreds of other mothers whose children can hardly be trusted a second. Well, friends, the reason we have so much help that is more bother than it is worth, indoors and out, is because they have not been taught in early childhood to go through the world without making mischief and trouble at every step. I know there are a few hired

girls who will go into any home, catch on to what is being done, and astonish people by letting them know they are jewels of flesh and blood in the shape of hired help; but when these same jewels are once found you can not get them, no matter what wages you offer, for they have permanent places, and their employers will not let them go. The above are the reasons why Mrs. Root as well as thousands like her prefer to do their own work. This being true, it behoves every loyal husband to do every thing in his power to save the steps of the dear one that ministers to his wants.

I am now going to say something about house-building. Just 23 years ago Mrs. Root and I decided to build a brick house. We studied plans, talked with architects, and went over the ground most thoroughly—at least we thought so. After all our figuring, however, we made some bad blunders. The diagram below will explain one or two of them.

Let D represent the dining-room with the dining-table in the center. K represents the kitchen with the cooking-stove pretty nearly in the middle. Let P represent the pantry. This pantry has two doors; but for 21 years it has had only one. O represents the old door and N the new one. We had an expensive architect, and we discussed the matter of mistakes before we went to work at it. He said he would make good any mistake he made in his figures. One of his worst mistakes was in making the pantry, P, two feet longer than he intended. The dotted line near the letter O shows about where the end of the pantry should have been. By getting it two feet longer, the path from the stove into the pantry was made so much longer. At the opposite end of the pantry let A represent an outside window. Right under this window is a broad shelf. Under the shelf are drawers for spices, flour, meal, etc. A great deal of work was done on this shelf below the window A; but to get to that shelf one had to go around through the door at O in a roundabout way. At the letter W there is a pair of wide doors that open so as to pass things from the pantry over a broad shelf at W, to the dining-room table. Well, after putting up with this awkward arrangement, necessitating useless travel (shall I say hundreds of miles? Well, it was a *good many* miles in the 21 years, I assure you) Mrs. Root all at once said she wanted a carpenter to make a door at N. This we call the new door. Now, to go from the stove to the shelf at A she goes through N, in a straight line. After this door was



cut through, she said it gave her a thrill of delight, not only daily and hourly, but every few minutes, to think of the ease with which she could go back and forth instead of taking that old roundabout path. No doubt hundreds of our readers are ready to suggest a still better arrangement of kitchen, pantry, and dining-room than we have now; but may be some of you good women are probably making roundabout routes just as Mrs. Root did. The new door cost only about \$5.00, including having every thing finished and varnished just like the rest of the room. Mrs. R. tells me that pantries are being generally dispensed with nowadays. They just have shelves with doors to close them—cupboards you might call them.

Now for another short cut. Back of the stove is the woodshed. You may think it is old-fashioned when I tell you we still keep a Stewart cooking-stove, and burn wood. Of course, we use gasoline more or less in summer,\* but in winter Mrs. R. is just old-fashioned enough to stick to good dry maple wood and the old-fashioned Stewart stove.

Inside of the woodshed near the kitchen stove there is a storeroom marked S. For 21 years this storeroom was inclosed and had shelves on three sides as shown by the dotted lines. This was put up in order to shut off from the open woodshed things to be stored that there was not room for in the pantry. Well, this storeroom was dark, crowded, and inconvenient. Just recently we took away the partition and door, and put light short doors over the shelves on the north and east wall, and she says she nevermore wants rooms when shelves covered with doors can be made to take their place. The old arrangement was really more expensive than the new.

In order that the floors of our house may be taken care of with less trouble, we are dispensing with carpets, and using rugs over the painted floor. One of our great trials with carpets has been the carpet-moth; and I think we have banished them entirely by filling the cracks of the floor with paint, and leaving the floor exposed all around the outside. Of course, the exposed portion is covered with floor-cement, and varnished. It is certainly a big move in the right direction to have houses so arranged that we can keep absolutely clear of insects and vermin. I do not suppose we shall ever be able to banish dust entirely here in this world, "where moth and rust doth corrupt, and where thieves break through and steal;" but by availing ourselves of all modern appliances we can do a great deal to save the

labor of dusting, sweeping, and pounding carpets. And right here I wish to emphasize again the importance of drilling the children again and again in the matter of carefully cleaning their feet before they rush into the house. Have good porches, storm-doors in winter, a broom in readiness, hush mats on which to wipe the feet; rubbers to put on when it is muddy or sloppy, and a place to keep them when they are not needed, etc. A good husband will, of course, help in all this drilling—line upon line, precept upon precept; and as example goes beyond precept he will—that is, if he loves his wife—take pains to set an example before all the children. I know it seems sometimes that matters are so pressing that the wife will have to excuse rushing in, even if it is just a little muddy. Well, if your own or a neighbor's house is on fire I think you may be excused for not cleaning your feet, but, you may almost say, nothing short of that.

The following comes so near the matter we are discussing I give place to it here:

*Friend Root:*—I see by the Oct. 1st number of GLEANINGS that you are fitting up an up-to-date bath-room. Can you not give us some information regarding it? I recollect that, years ago, you wrote something about having the stove-flue answer as ventilator. Kindly tell how, etc.; also the best way to dispose of sewage. I expect to put one in soon, and shall await your answer.

Kerrmoor, Pa., Oct. 10.

J. P. WATTS.

Friend W., the matter you refer to was very fully written up in GLEANINGS for May 1, 1901. At the time, we had a lot of leaflets struck off, entitled "Sanitary Drainage," and we are ready to mail them to any of our subscribers who have not seen them. Since then there may have been some improvements in bath-room appliances. Montgomery Ward & Co., and I presume other like dealers, give cuts and descriptions of the latest appliances. The best bath-tubs are made of enameled cast-iron. While this is not equal to porcelain, the expense of the latter is so great they are seldom seen except among the very wealthy. Enameled iron has been used largely for water-closets and wash-basins; but they are so difficult to keep clean that most people think it better to pay a little more and have the porcelain. I do not know of any reason why enamel or agate coating may not be made to equal porcelain; but so far as I know it has not yet been done. The water seems to have a corrosive action in time on all of the enamel ware that it does not have on porcelain. We have had three water-closets. The first one was made of iron, and painted. This looked untidy in a very short time. The next one was porcelain, costing, I think, about \$15; but the working of it was very defective. It needed a great deal of attention to keep it clean. The latest one, costing \$30, just put in, is called the "Hustler," and is made by E. W. Fisher & Co., Cleveland, O. It has a low-down reservoir; and when you lift the lever the contents of the bowl are thoroughly washed by a strong current of water clear out of sight; but just after the water

\* This woodshed was purposely left without any ceiling overhead, and our gasoline-stove is in this room. We tried to use it in the kitchen, but Mrs. Root declares that, whenever she uses gasoline, she must have a room sufficiently open to let the odor escape up through the roof. The gasoline-stove is also used more or less in the winter time, whenever there is frying meat or other cooking that might make it unpleasant or be liable to smoke, or make the ceiling and walls look untidy. I know of a good many people using gasoline in close rooms near the pantry and dining-table. But such an arrangement does not suit Mrs. Root, for the reasons given.

and every thing else have gone entirely away, the bowl fills up, say, half full of clean water, so the apparatus, when it rests, presents to the user just a bowl of clean pure water and nothing else. The arrangements for avoiding all bad odors are the same as the one mentioned in the leaflet on sanitary drainage. Our bath-room contains, besides the bath-tub, water-closet, and basin, a hot-water radiator, so that it is always warm and comfortable in there, even in the night.

I forgot to say that there are a good many beautiful wash-bowls for hot and cold water, made of enamel, such as we have been talking about; but those of our neighbors who have used both, vehemently urged that we get a marble-top basin with porcelain bowl. This costs almost double the other kind, but they declare it is enough easier to keep clean and tidy to pay the difference.

I am well aware that there are some people who will say, "Oh! it is all very well for you rich folks to talk about your bath-rooms, etc., fitted up in city style, but—"

Now, my friends, let me say a word on this very subject. We have hundreds and thousands of well-to-do farmers who have all the latest appliances for caring for stock and handling farm crops, and this is all right. They have earned the right to them. Some of these well-to-do farmers, and I may say well-to-do mechanics also, are willing their wives should have modern and even elegant furniture for the homes; and where is there a woman who would not be made happy by having an up-to-date bath-room right out in the country? Not only is such an apartment a useful object-lesson to every member of the family, but I firmly believe thousands of lives might have been saved by installing these modern sanitary arrangements. When there is a neat tidy room in which to take a bath, the children will not need scolding to make them keep themselves clean; in fact, they will take pride in it besides enjoying it. They will be more likely to clean their feet when they come into the house, and they will take better care of their clothing. A good bath-room is one of the appliances of civilization, and I might also say of our Christianization; and what woman is there who will not feel a just pride in showing her guests, relatives or others, how conveniently she can minister to their wants in a civilized way? I do not mean, of course, that people should go to such an expense until they can afford it; but thousands who *can* afford it neglect this wonderful convenience as an adjunct to the home. In the summer time I greatly enjoy taking a good wash out at the cistern pump, and perhaps that is the least expensive way, all things considered; but in cold stormy weather I do greatly enjoy a warm bath-room where I can take a good wash, say after traveling on the cars or any other way for that matter. Cleanliness is *certainly* next to godliness; and order is *one* of heaven's first laws if not the very first.



#### MY APPLE STORY.

Now, this story about apples is going to touch on a good many things; and you may think, when you are part way through it, it is not an apple-story at all; but you will see where the apples come in. A little over a year ago I started to tell you about my trip to California, and return, and I am going back now to finish it. I left off where I was enjoying the health-giving waters of Agua Caliente hot springs. After I crossed the desert with my brother to his old home in Tempe my digestion began to get back in its old track. We carried along some large canteens filled with water from the springs. So long as that lasted I was well and happy; but when I began to drink water from other sources there was trouble. I tried distilled water. That was better than the miscellaneous waters I found in traveling, but it was not by any means equal to the water of the hot springs; and it seems to me as if this special water contained some chemical that was specially needed.

My first stop after leaving Tempe was at Bowie, on the Southern Pacific. This is a little station away off on the sandy desert, with great mountains looming up on every hand. At Bowie there are the largest oil-tanks, to contain the oil belonging to the Southern Pacific, that I ever saw in my life. I took down the dimensions, but I have lost them. You could not only put a good-sized meeting-house inside of one of those tanks, but they were large enough to contain a moderate-sized country village. The station agent told me how many thousand barrels each one held, but I have lost my figures. No wonder these western railroads can afford to oil their road-beds to keep the dust down, and to run their locomotives with oil instead of coal.

We had to wait nearly all the afternoon for the train to Safford, where W. D. Jefferson had invited me to call. I will not describe his ranch here, for I did it on page 27 of our issue for Jan. 1. It was terribly hot around Bowie station. While waiting for the train I looked longingly toward some of the clouds that seemed to threaten rain; and we could see rain coming down in different directions off in the mountains and down the valley toward Safford. The train was late, and the longing eyes of the weary passengers were often turned away across the desert. I was one of the first to catch sight of the smoke of the engine, and I think it was fully an hour after we got a glimpse of it before it reached the station. The delay was caused by heavy rains down in the valley. One woman echoed my sentiments when she said, "I wish it would rain here. I should like to see a big soaking rain out here in this hot dry sandy desert."

Another passenger replied, "Well, you may see a soaking rain to your sorrow before night."

We were finally all aboard, and the train started off. I had not had my after-dinner nap, and so after watching the showers over on the mountains from the open window I put my head on the window-sill and went to sleep. I must have been sleeping quite a spell when I was suddenly awakened by a lurching of the train and the frightened ejaculations of the passengers. I rubbed my eyes, and looked out of the open window where it had been only a dry sandy desert when I went to sleep, and imagine my surprise to see a roaring torrent of water cutting its way though the sand, making gullies in some of them a dozen feet deep or more, right close up to the tracks. In some places this gully had washed right under the ends of railroad-ties, and the commotion of the passengers was caused by all rushing to the opposite side of the car, for the track already sloped unpleasantly toward this chasm of rushing muddy water. The engine was just crawling along, and I suspect there were many prayers besides my own that we might get safely away from that dangerous torrent. At Solomonsville we found the station in a pond of water; in fact, the water was almost in to the depot buildings. Some passengers who wanted to take the train were coming from the town a quarter of a mile away through the water, in a carriage; but the driver could not see the road, and it was a question whether they would ever get to the station; but as the rain had ceased, and the water was rapidly running away, they finally reached us and the train started off. As we approached Safford there was less and less rain; and at Pima, my destination, there was but very little rain.

I told you in the issue referred to of my visit to friend Jefferson's home and apary. The next morning we started out to see some of the fruit of Graham Valley. Right across the street from friend Jefferson's there was a prune-orchard of two or three acres. The trees were bending with beautiful luscious prunes; and when I asked why they did not gather them I was told the man who owned the orchard had moved away, and for several seasons the prices offered for prunes had been so low they were never picked. The people around town helped themselves to what they wanted, and the rest fell to the ground and rotted. Now, this is not a very pleasant story, especially in regard to the market price for fruit in this valley. I presume some enterprising man could have gathered the fruit and made a good thing of it, but it was simply neglected. Prunes keep so long without injury that they can hardly be called a perishable fruit. If I remember correctly I ate quite a few prunes before breakfast; then we started out on a tramp among the fruit-growers. There were peaches, apples, pears, and grapes at almost every stopping-place. Of course, I had to sample them. I remember thinking several times that I should probably get sick, but I

thought I would take the risk for just once. May be it was only imagination, as friend Terry puts it. Besides, I was walking in the open air. Friend Jefferson can tell you how many miles we tramped that day, but it was almost from morning till night. I can not remember the names of the bee-keepers we visited; but I shall always remember one particular fruit-ranch belonging to Mr. T. O'Briant, a little out of town. Arizona has not been considered an apple-growing region. Around near Tempe and Phoenix I saw occasionally an apple-tree with a few apples, but they were regarded mostly as a curiosity. Well, this Mr. O'Briant got it into his head a good many years ago that a certain variety of apple, with proper treatment for that locality, could be made to do well, especially as the prices of apples were away up. I think I told you about an incident that happened on a former trip to Arizona. A little girl came into the grocery and laid down half a dollar for its value in apples. The proprietor weighed them on the scales as he would coffee and sugar. He poured the fifty cents' worth of apples into a paper bag, and the little girl carried them home without any trouble whatever. Apples there cost two or three cents apiece, and not very nice ones at that. Very likely they were *Ohio* apples. Well, now, Mr. O'Briant had had some experience with nurserymen in the East. He laid his plans for a forty-acre apple-orchard. He grew the trees himself, and did all the budding and grafting. He chose such varieties as had been grown successfully in that region; and it was my privilege to see the outcome for his work for twenty years or more past. There were about forty acres of the finest-looking apple-trees I ever saw. Under the influence of irrigation the trees grow every month in the year. Not only the limbs but the trunks of the trees are mostly smooth and clean. As there are no other apple-orchards within miles and miles of this one, or none of any account, there were no insect enemies. The trees were not only pictures of health, but almost every limb was bending with the most beautiful fruit it has ever been my fortune to look on. Just think of it! The codling-moth had never been known in that region. There was not a wormy apple, so far as I could find, on that whole forty acres. There was no blight nor scab, and there were no knotty, gnarly, and poorly formed apples. The bugs and insects had not caught on as yet to the new speculation. At first he ventured on only a few varieties he knew would succeed in that region. Then he commenced by grafting different kinds until he had almost every apple you could mention, especially in the way of winter apples.

As there had been considerable discussion in regard to the quality of the fruit under irrigation, they wanted me to test different varieties; and after I had tested the apples, there were peaches and pears. After I had decided for the tenth or eleventh time that I must not taste another bit of fruit, I was shown the Lincoln seedless pear. May be I

have not got the name right, but that does not matter. I tested a great luscious pear, and decided in regard to the quality; and as it was a coreless I had to get clear down to the core to satisfy myself that it was no myth having a pear without a core. The simplest way seemed to be to keep on biting until I got to the core, and, sure enough, there was nothing there fit to be called a core. The pear might have been pared, and then canned or preserved, without cutting out any core at all. Then Mr. O'Briant had some new varieties of watermelons that I ought to sample while I was there. These new melons were probably extra fine. I had sampled so many things that I was not in shape to be judge. As I had been told friend O'Briant had recently sold his orchard, this creation of his skill and brain, I began to banter him a little about selling out just as he had made a great success. His good wife came in just at this time and suggested that her husband was getting old, and it was a great care and responsibility to get all those apples picked at just the right time, and have them sent to the best market. If I remember correctly the purchase price was \$20,000, or \$500 an acre for a piece of land in the middle of a great sandy desert where there is plenty of land to be bought for \$5.00 an acre, perhaps, instead of a hundred times that much. Well, the good wife said something like this:

"Mr. Root, 'what doth it profit a man if he gain the whole world and lose his'—*health*, to say nothing of wearing him out *soul* and body by hard work?"

The good woman had got it right. It is a grand thing to make the sandy desert blossom as the rose, and to make two blades of grass grow where one grew before; but that does not half express it. It is a grander thing to make thousands of beautiful apples grow where not a single one ever grew before. But after having done this, I think friend O'Briant and his wife were wise in deciding to sell out and take things a little easier—not that friend O. should sit down in an easy-chair and read newspapers from morning till night, for that would be a still worse extreme. I would suggest, say, a "cabin in the woods." If I could have my way about it I would have some woods where it is a little cooler than that locality in Graham Co. But that is easy enough. The great mountain that towered over our heads through all our walks during that memorable day has pleasure-resorts clear up to its very peak where you can find frost, I think, almost any time of the year. I looked longingly toward the peak, but my arrangements would not enable me to stay long enough; but I promised myself the pleasure of ascending it at some other time.

Some of you dyspeptics may be curious to know whether so much fruit really made me sick, especially when I did my very best to think it was the exact diet that God intended his children should use. Well, I was sick, now let me tell you, not only all the way home, but for two weeks afterward;

and I believe it was mainly the result of eating to excess the most luscious fruits that this earth affords. May be if I had had Agua Caliente water to drink all day for several days afterward it would have been all right. I can not tell. I remember rejoicing to find a can of distilled water at one of the bee-keepers' ranches out in the country. Every village of any size in those torrid climates has an ice-plant; and where they produce ice they always have distilled water for sale. I think the price was only five or ten cents a gallon. Where the common water is alkaline they often take the distilled water around in wagons as they do milk here in the East.

I was too sick on my way home to enjoy any thing very much. A blizzard that came up suddenly while we were crossing the plains of Kansas gave me a touch of my malarial chills. But I wish to mention, before winding up this California trip, something about the wonderful Chicago drainage canal. Our railway, the Santa Fe, struck it perhaps fifty miles before we reached Chicago. I think I got my first glimpse of it early in the morning. A great portion of the way it is cut through the solid rock; and the heaps of blue slate piled up along each side of the canal were so high in some places it made me think of the Arizona mountains. I had read about this wonderful piece of engineering before; but one needs to ride along by it and see it to realize what stupendous undertakings are being and have been carried out in this day of progress.

#### SENDING YOUR HORSES TO SCHOOL, ETC.

*Dear Mr. Root:*—Don't you think you are too patient with the unreasonable attitude of Mr. Atkinson? There is no possible doubt that his horses can be made fearless in three or four hours. It is pure obstinacy, and a large number of *Farm Journal* subscribers are of the same opinion.

S. H. Rous.

Philadelphia, Pa., Oct. 13.

The above was written on the margin of a leaf clipped from some magazine. This leaf gave pictures of the school described in the following extract:

#### AUTOMOBILE SCHOOL FOR HORSES.

While in many sections of the country people are trying to devise means to educate horses so that they will not become frightened at the sight of an automobile, away out in Bretton Woods, in the mountains of old New Hampshire, a few men have done more than to make suggestions.

They have established a real school, an automobile school for horses, and J. F. Hathaway, of West Somerville, was the auto-philanthropist who took upon himself the task of bringing horse and motor car into harmony.

The first lesson was to drive his car into the Mt. Washington stables, where there were more than 100 horses. At first it caused a commotion, some of the horses becoming so scared that they lay down in their stalls. After a few days most of the horses became used to the sight of the car, and were induced to eat sugar from the machine.

The results have fully compensated the teachers for their efforts, as there has not been the slightest accident to person, horse, or vehicle. This is the more astonishing in view of the great amount of driving and riding done at Bretton Woods. The record for eight days, from August 21 to 28 inclusive, shows that 496 horses had been let to guests at Bretton Woods. These horses have almost all been trained not to fear automobiles.

The letter may be a little severe on our

good friend Atkinson; but inasmuch as we have had similar letters from quite a number of people I do not think it will do any harm to let him see some friendly criticism. This matter of a school for horses suggests another wonderful field for experiment and invention. When Ernest came home from the St. Louis exposition and said there was a horse there that knew his A B C's, could spell easy words, and "cipher," I remonstrated with him. I told him all such things were only shrewd tricks, and that it was not worth while to waste time in unravelling the trickery. But now the *Scientific American* comes out and declares that some of the foremost scientists of the world have been compelled to admit that this horse "Hans" has actually been taught by a process of careful schooling so he has quite a little education. I will make a little mention of his acquirements. He can not only do simple examples in mental arithmetic, but he has acquired a vocabulary of words that he can spell. The keeper turned his back and told his audience to test him by asking him some questions. Somebody asked him if he could spell *Nebuchadnezzar*. After studying on the question for a while with his trained horse sense, he shook his head. It was too big a job, and was beyond his schooling. The trainer interposed, and told the audience to give him the names of some of the large cities of the United States. When asked if he could spell *New York* he pricked up his ears and nodded in the affirmative, and then picked out the proper letters from the pigeonholes in plain sight, and spelled the words correctly. He did the same with San Francisco and New Orleans. His mental arithmetic was about like that of a child five or six years old who has had some little training. If the example was not too hard he could manage it all right. Well, if it had not been for radium, wireless telegraphy, and similar unfoldings, I might let the matter drop; but, dear friends of the human family, does not this suggest that, what "Hans" has been taught to do, other horses can be taught in like manner? Who knows but that, in a few days more, we shall be startled and appalled to know the possibilities that lie along the line of training that dear friend of mankind, that noble creation and gift of God?

Now, to come down suddenly to earth (from our mental "flying-machine" for instance), let me suggest that Bro. Atkinson and the host of farmers who have been following him should get some lumps of sugar and teach their horses to take it from their hands while they sit in an automobile. Instead of scaring the poor dumb brutes out of their senses by the spectacle of a buggy that goes without a horse to pull it, shall we not teach them, as fast as possible, that everybody who rides in an automobile is very likely to have some lumps of sugar in his pocket that he will be glad to give to every horse that looks at him inquiringly? Why, bless you, this is no fiction. We once had a horse on the vegetable-wagon that had been

bothered by mischievous boys until he showed his teeth, and snapped at everybody who passed under his nose, myself not excepted. I said at first I would whip it out of him; but on further consideration I filled my pockets with sweet apples until he learned to expect an apple every time I came in sight. It was laughable to see him, each time his bad disposition was aroused, with his ears laid back on his neck, change so suddenly to a bright and intelligent-looking horse with his ears pricked forward, when it took nothing but a sweet apple to win his big clumsy self, heart and soul. Yes, I believe a horse has a heart, and that he will remember his friends just as he does everything else; and I do not know but the dear fellow has some sort of soul. Who knows what has been slumbering, only awaiting development, in the horse's mind during the centuries that are past? May God help us to recognize the wonderful possibilities with these animals that have been right with us so long, and yet we did not know it.

After the above was in type I noticed in the *Farm Journal* for November the editor has made an extract of where I spoke of passing a buggy containing a baby, its mother, and grandmother (see page 854, Sept. 1). The editor presents the matter very kindly, but he has drawn some wrong deductions. In a little picture that is very cleverly drawn, he represents myself as riding the automobile as I passed the women. Now, perhaps I was careless in describing the event; but the truth of the matter is, I ran the machine up to the side of the road, and walked quite a distance to meet the women. I took the horse by the bit, led him close to the machine, and even went past before I could induce them to get in. The *Farm Journal* says further in regard to it:

Mr. Root's effort to soothe the frightened grandmother was well meant, but not at all effectual; and he does not seem to appreciate the great wrong done that poor old lady, nor seem to care if this shall be the last time she will ever take the risk of another ride.

The above statement is not quite in accordance with the facts. I did succeed in soothing the grandmother, and mother as well; and they were profuse in their apologies for having made such a fuss when there was really nothing to be alarmed at. I was exceedingly pained to know that I had been the means of giving them such a fright, but I do not think either of them felt at all like saying they would not go out with a buggy any more. Now, is it not possible that these two women had been reading what the *Farm Journal* has said for some months past (you know it goes anywhere)? and is it not possible the editor of that journal is as much responsible, or more so, for the fright of those two women than I was myself? One thing they said I had almost forgotten. It was to the effect that my machine made so little noise, comparatively, it was not likely to frighten horses; and that if other drivers would take the same pains I did, there certainly would be no reason for such apprehension.

In conclusion, why is it that neither the *Farm Journal* nor T. B. Terry has as yet touched on the matter of the importance of educating horses at large *as speedily* as possible, just as the horses *are* educated all through and around the locality where autos are a daily sight?

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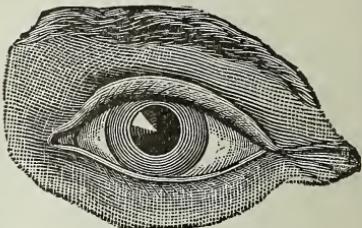
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